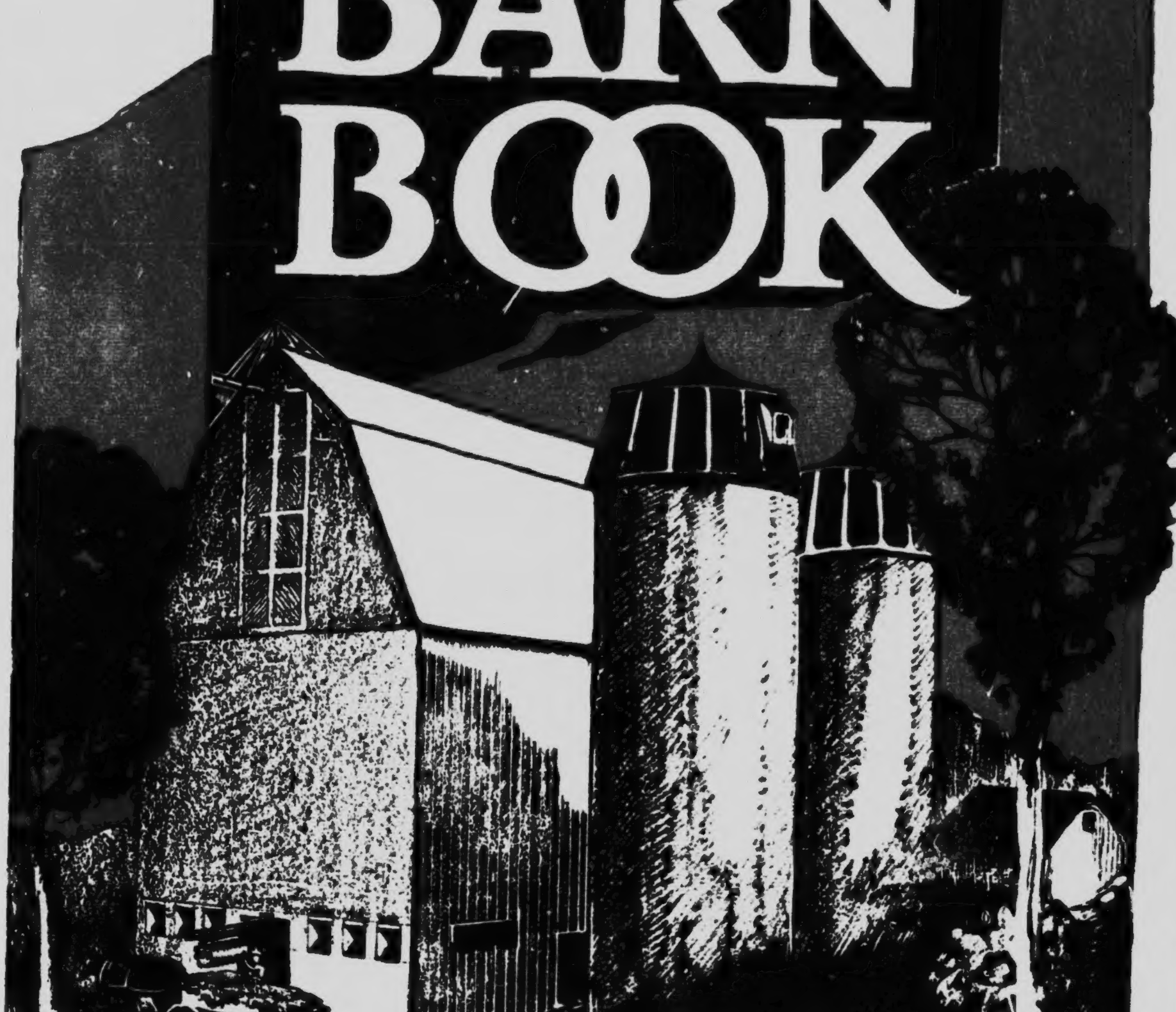
BT BARN BOOK



Beatty Bros., Limited
Fergus, Ont.
Winnipeg, Man. Montreal, Que. St. John, N.B.
Edmonton, Alta. Vancouver, B.C. London, Eng.

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1920z
No ILL

Charles Gordon Gates,
R.R.1 Kingston, Ont

As our catalogues remain in circulation for a considerable period of time after they are published, we reserve the right to change the specifications of the goods, if, in our opinion, they can be improved thereby.—BEATTY BROS. LIMITED.

Feb. 2, 1921

BT BARN BOOK

Beatty Bros., Limited
Fergus, Ont.
Winnipeg, Man. Montreal, Que. St. John, N.B.
Edmonton, Alta. Vancouver, B.C. London, Eng.

Canada is the Home of Good Barns

No country on earth is superior to Canada in the matter of good barns.

And why not?

We have the climate that demands them; we have the timber and materials required to build them.

Canada has the live stock to put in the barns when they are built. Canadian cows are leading the world in milk production.

Canadian Dairy Products are going into the world's markets in ever increasing volume. They now form a very large part of our national output. If they are produced in good barns from healthy cows and by intelligent dairy men, their premier place in the world's markets is assured.

It is our hope that this barn book, in which we have compiled the best information we can secure on good barns, will be a force for better farm buildings wherever it goes. Good equipment is not enough. The whole barn must be sanitary, well designed and comfortable.

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Barn [illegible] Ontario Provincial Hospital, Whitby, Ont

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Gordon Gooderham, Clarkson, Ont.

Banquet held in barn of
Gordon Gooderham, Clarkson, Ont.

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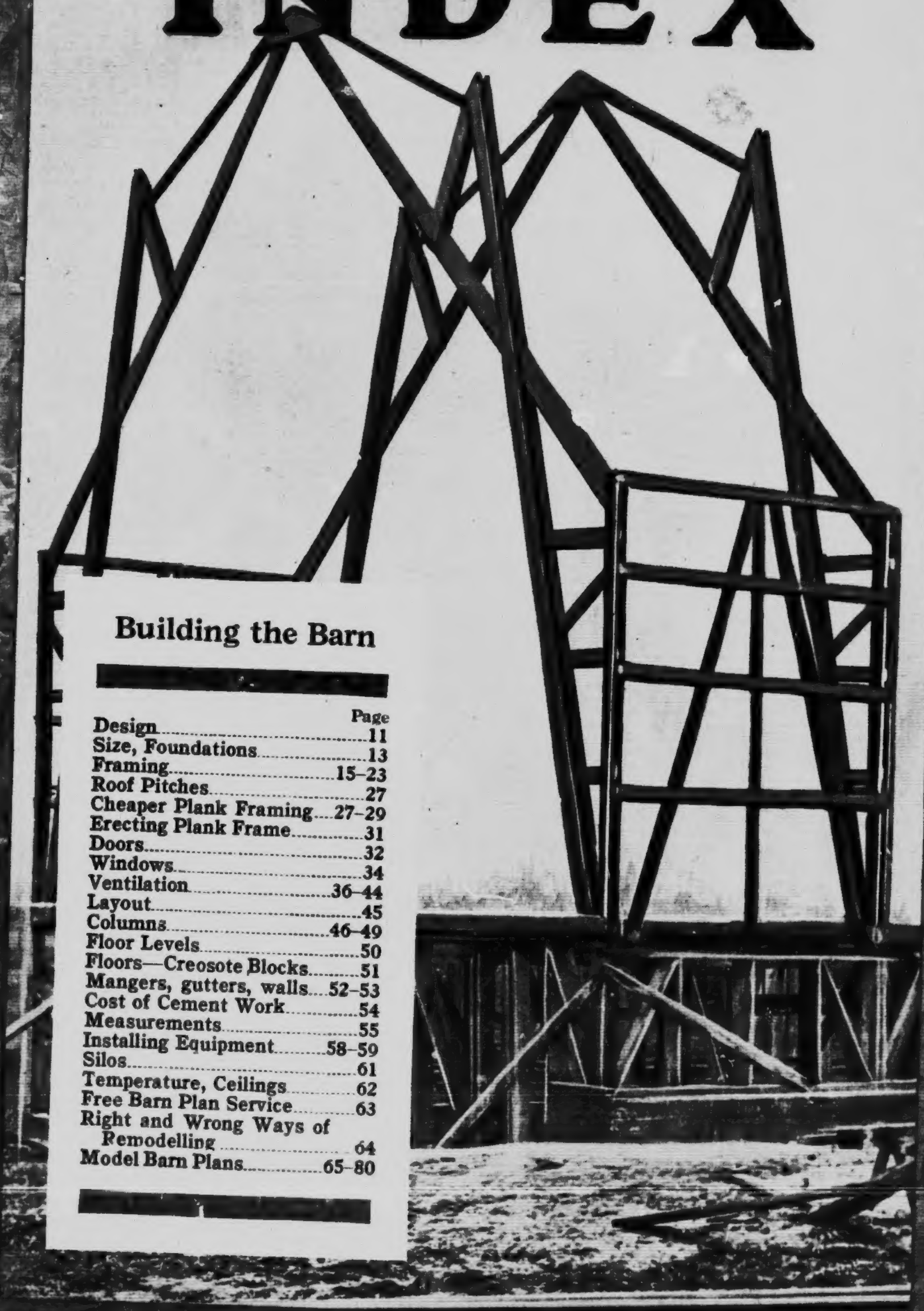

Building the Barn

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One of the Dairy

Barns of Walker Sons, Limited, Walkerville, Ont. fitted throughout with BT Equipment.

Building the Barn

The building or remodelling of a barn is a most important event. It is a job which cannot be done over again except at a big cost. So, it is well to do the job right.

It is well to study the principles of barn construction, best methods of framing, lighting and ventilation and layout of stables. It is well to investigate the matter of sanitary steel equipment so that you will be sure to get Steel Stalls which are easy to install, and so that you will be sure that the equipment you buy will last long and look well, and that it has all the advantages and conveniences to enable you to reduce stable work to the greatest possible extent.

To do the job right costs no more in the long run than to do it all wrong. It costs no more to have a barn which is handily arranged and conveniently fitted up, so that the barn work can be done quickly and easily, than to have one in which many needless steps must be taken and much drudgery required. It costs no more to build your barn so your stock will be healthy than to build your barn in such a way that they are constantly exposed to disease.

Building your barn right does not only mean that you must install modern sanitary equipment. Such equipment is necessary; but you cannot get the best results from it unless the principles of sanitation are followed in the construction of the building.

For instance, sanitary steel stalls keep the cows clean, comfortable and contented, so that they give more milk and better milk. Yet, not even the steel can overcome the disadvantages of a stable where there is little light and no ventilation.

Remodelling the Barn

Remodel your barn right. Remodelling demands as much forethought, investigation and care as building. When you remodel your barn, take the same pains as you would if you were building; see that floors, gutters and mangers are properly constructed; put in the sanitary equipment; improve the lighting and install a ventilation system. Most of the ideas in this book can be used by the man who remodels, as well as by the man who builds. Some of the barns shown in the book are remodelled barns: for instance, the barn of H. McIntyre, Tutela Heights, is a remodelled barn.

Whether you build or remodel, you can have a barn which is as fine in appearance, sanitary and as handy to work in as any barn in this book. Good barns and good equipment are not the exclusive right of rich people. More barns are built or remodelled by farmers of average means than by men of wealth; and most of our sanitary, labor saving equipment is sold to farmers of average means; in fact over 90 per cent. of BT Equipment is sold to the average Canadian farmer.

Points to be Considered

In this chapter scarcely more than essential principles have been dealt with. Conditions vary so greatly in different provinces that no detailed rules have been given. In our Prairie Provinces, for instance, winters are extremely severe, while along the Pacific Coast they are quite mild. Again, cement is the most economical material for foundations in some sections, but, in others, it is better to use stone. General principles, however, apply everywhere.

Site

Don't make any plans for your barn until you know where you are going to build it. Avail yourself of the shelter of the hills, trees, hedges and buildings, which will act as windbreaks. Have all your buildings grouped in as compact an arrangement as possible to save steps in looking after the stock. The new barn should be handy to the house and easily accessible from the fields. Run the barn North and South, so the strong, direct sunlight from the East and from the West can flood through the row of windows along both sides. The barn will be warmest when arranged this way, because the wind from the North will strike the ends. The Barnyard should be in the sun on the South or south-west. Driveways will, therefore, be at the East or West. The barn should be located high enough to permit it to be well drained. A clean yard is very desirable for the sake of the health and cleanliness of the cows. Many farmers have a concrete yard. Others fill the yard with 6 inches of broken stone covered by a layer of cinders.

Appearance

A prospective buyer can be more easily influenced to pay a handsome price for a farm by a well designed, fine appearing, practical barn. The appearance of the barn can be made to have a big cash value and should be thought of in the planning. It is not a costly matter to make a barn beautiful. Put dormer windows in the roof, add a cornice and cupola. They pay well. Paint the barn. It gives your farm the appearance of prosperity, and adds to the life of the building.

There are several distinct types of barns and some things to be said in favor of all of them. There are rectangular, square and round barns. The first of these has gained great favor in recent years.

You will note that almost all the barns in the BT Barn Book are rectangular, or consist of one or more rectangles built together to form a T or an L. See pages **40-41**. Cows are arranged in two rows running the full length of the barn. Sometimes there are three rows, a row of pens running along one wall. These rectangular barns are seldom more than 36 feet wide.

There is not as much floor space available in them, in proportion to the length of walls, as in the old-fashioned square barns, but there are other considerations which will make them preferable. They are better lighted, even the centre being flooded with sunlight. They can be ventilated more effectively. The two-row arrangement is handier for feeding, cleaning, tying up the cows and other stable work. Not one inch of floor space is wasted, less space being required for passages than in the square barn. Rectangular barns are very neat in appearance. They can be framed more economically than a wide square barn.

The One Storey Barn

Should a Dairy Barn be one or two storeys? To a great extent this depends on circumstances. The one-storey Dairy Barn has many advantages. It can be kept isolated from all other stable odors and from dust and chaff. The frame does not have to be so heavy as it does when a second floor has to be supported. By means of a monitor roof it can be lighted more easily and thoroughly than a two-storey barn can possibly be (See page 21). In many barns there is plenty of space for feed storage without keeping the feed above the dairy stable. If there is already a barn available for storing feed, accommodation for the dairy cows can be provided more economically in a one-storey barn. This type of stable lends itself very easily to extension should the herd increase at any time to warrant it.

If properly built there is no objection to a two storey barn. It is very necessary to make sure, however, that the ceilings are thoroughly tight, so that dust and chaff will not fall through from the loft above. Hay chutes should either be built down to the floor of the dairy stable or should come down into a feed room separate from the dairy; otherwise dust will get into the stable and spoil the milk. Two storey barns are most economical when there is not already a barn for feed storage. The expense for roof and part of the walls does not have to be duplicated. When a barn is being remodelled and there is already sufficient feed storage, but extra stabling is necessary, a very good plan is to put horses, calves, young cattle, box stalls, pens, and feed rooms in the old stable, and run a one-storey stable from this old barn for the cows. In this way an ideal cow stable can be made at a low cost. See page 69.

Size

The size of the barn varies on every farm. It depends upon the size of the farm; the kind of farming carried on, kind and number of head of stock; size of crops and plans for expansion in the future.

Always plan the barn so that stock sizes of lumber for joists, studding, rafters, braces, windows and doors can be used. Two-inch plank is always made in even lengths such as 12 feet, 14 feet, etc. Stock sizes for windows are given on page 34. The barn should be built so that it lends itself readily to expansion. If a barn is properly planned, it is an easy matter to increase the size as the stock increases. It is better to build a small barn properly and add to it, than to build a big place in which the cows are so poorly housed that they cannot pay a profit.

Experience has shown that certain measurements for passages, stalls, mangers, curbs gutters and cattle stands are most practical. With these in mind, as well as the requirements mentioned above, it is not difficult to determine upon the right size.

Foundations

Good drainage is one of the first requisites of floor foundations. If the barn is in a low place, make a filling so that the stable floor will be 6 or 8 inches above the surrounding ground. If the barn is standing on heavy clay soil, and if it is not practical to get a fill of loose stones or gravel, place drains under the flooring so that it will be kept dry. Run the drain in a straight line underneath the whole length of the cattle stands.

If the cattle stand is properly underdrained so that it will be dry there is never any danger of injury to the cows' udders from lying on the cement.

In making floor foundations, remember that the passage way behind cattle stands should be level with the sills of the doors, as this passage must be used by the cows entering the barn to be tied in their stalls.

For wall foundations, nothing can equal concrete. Their size varies with the size of the barn. Some people claim that the foundations should go down below the frost line. This is not necessary, especially in the dry climate of our prairie provinces. Go down until you get a firm bot-

Plank frame construction Barn of Mr. Gordon Gooderham, Clarkson, Ont.

Heavy timber frame construction. Barn of E. L. Chadsey, Chilliwack, B.C.

tom and if the ground is damp, or if you are dealing with clay soil, put in a tile drain beneath the wall. Wall foundations should come up at least 6 inches above the floor line and stout bolts must be embedded in the concrete to secure the frame of the stable. When wood walls are to be used, these bolts should be about seven feet apart. When the cement foundation rises 6 inches above the ground level, the wood frame and siding are kept clear above the ground and danger of rotting is avoided. Footings for walls should be built in the shape of an inverted "T," the footing being the stroke of the "T" at the bottom. For a one-storey barn the width of the footing should be twice the width of the wall and the depth of the footing half the width of the wall. For a two-storey barn the width of the footing should be twice the width of the wall and the depth the same as the width of the wall. For example, a 10-inch wall would have the footing projecting 5 inches to either side. If it were a one-storey barn the footing would be 5 inches deep. If it were a two-storey barn the footing would be 10 inches deep. Judgment must be used, of course, to make footings adaptable to the soil. In good suitable soil the sizes given above could be reduced. In sandy or marshy soil it might be necessary to increase size of footings. The above rule is a good safe average.

Proportions of cement for wall foundations are 1 of cement, 3 of coarse, sharp sand and 6 of clean, coarse gravel. If cement is not available, stone makes a good foundation, but it should be made 50 per cent. thicker than concrete.

Framing the Barn

To build the old style, heavy timber frame for a barn is a difficult and expensive proposition. Great skill and much experience is required to cut the mortise and tenon joints. Competent framers are difficult to get. The heavy timbers needed are scarce and costly. Study the illustrations on page 14.

The Plank Frame Barn illustrated in these pages is built entirely of planks no more than 2 inches in thickness and from 4 to 12 inches in width. Girders, trusses, purlines, and tie plates are all made up of these. If the right method of construction is followed, it can be made quite as strong as a heavy timber frame. Indeed it is a safer frame when we consider that defects in the timber are much more evenly distributed and the uprights are not weakened by joints. Barns properly constructed of planks have the same strength as the whole timber and can be secured much more strongly at the joints.

What is generally known as the "hip-roof" is always used with the plank frame. It gives a greater amount of storage space in the loft. The centre is open, allowing the hay carrier to work to better advantage. Where there are no interfering cross beams, the hay can be run into the mow at just sufficient elevation to clear the hay already there. There is less labor required both in putting in and taking out the hay. The old time "raising bees" become a thing of the past when the plank frame is built. No special skill is required to make the bents. The blue prints show details of construction better than we can describe them. Sizes of lumber are marked. The method of forming the joints at plate and purline is illustrated.

MATERIAL REQUIRED FOR STANDARD TRUSSES

INTERMEDIATE BENT

Width of Barn	36	36	38	38	40	40
Height of Post	12	14	12	14	12	14
Posts	4 2 x 8 12-0	4 2 x 10 14-0	4 2 x 8 12-0	4 2 x 10 14-0	4 2 x 10 12-0	4 2 x 10 14-0
Purline Supports	4 2 x 10 24-0	4 2 x 10 27-0	4 2 x 10 26-0	4 2 x 10 28-0	4 2 x 10 28-0	4 2 x 10 30-0
Ridge Braces	2 2 x 12 26-0	2 2 x 12 26-0	2 2 x 12 28-0	2 2 x 12 28-0	2 2 x 12 28-0	2 2 x 12 28-0
Purline Braces	2 2 x 6 12-0	2 2 x 6 12-0	2 2 x 6 12-0	2 2 x 6 12-0	2 2 x 6 12-0	2 2 x 6 12-0
Purline Braces	4 2 x 6 4-6	4 2 x 6 6-0	4 2 x 6 6-0	4 2 x 6 6-0	4 2 x 6 6-0	4 2 x 6 6-0
Collar Ties	2 2 x 10 7-0	2 2 x 10 7-0	2 2 x 10 9-0	2 2 x 10 9-0	2 2 x 10 9-0	2 2 x 10 9-0
Bottom Rafters	4 2 x 6 14-0	4 2 x 6 14-0	4 2 x 6 16-0	4 2 x 6 16-0	4 2 x 6 18-0	4 2 x 6 18-0
Top Rafters	2 2 x 6 12-0	2 2 x 6 12-0	2 2 x 6 12-0	2 2 x 6 12-0	2 2 x 6 12-0	2 2 x 6 12-0
Lookouts	2 2 x 4 4-0	2 2 x 4 4-0	2 2 x 4 4-0	2 2 x 4 4-0	2 2 x 4 4-0	2 2 x 4 4-0
Lower Cords	9 2 x 10 12-0	9 2 x 10 12-0	9 2 x 10 14-0	9 2 x 10 14-0	9 2 x 10 14-0	9 2 x 10 14-0

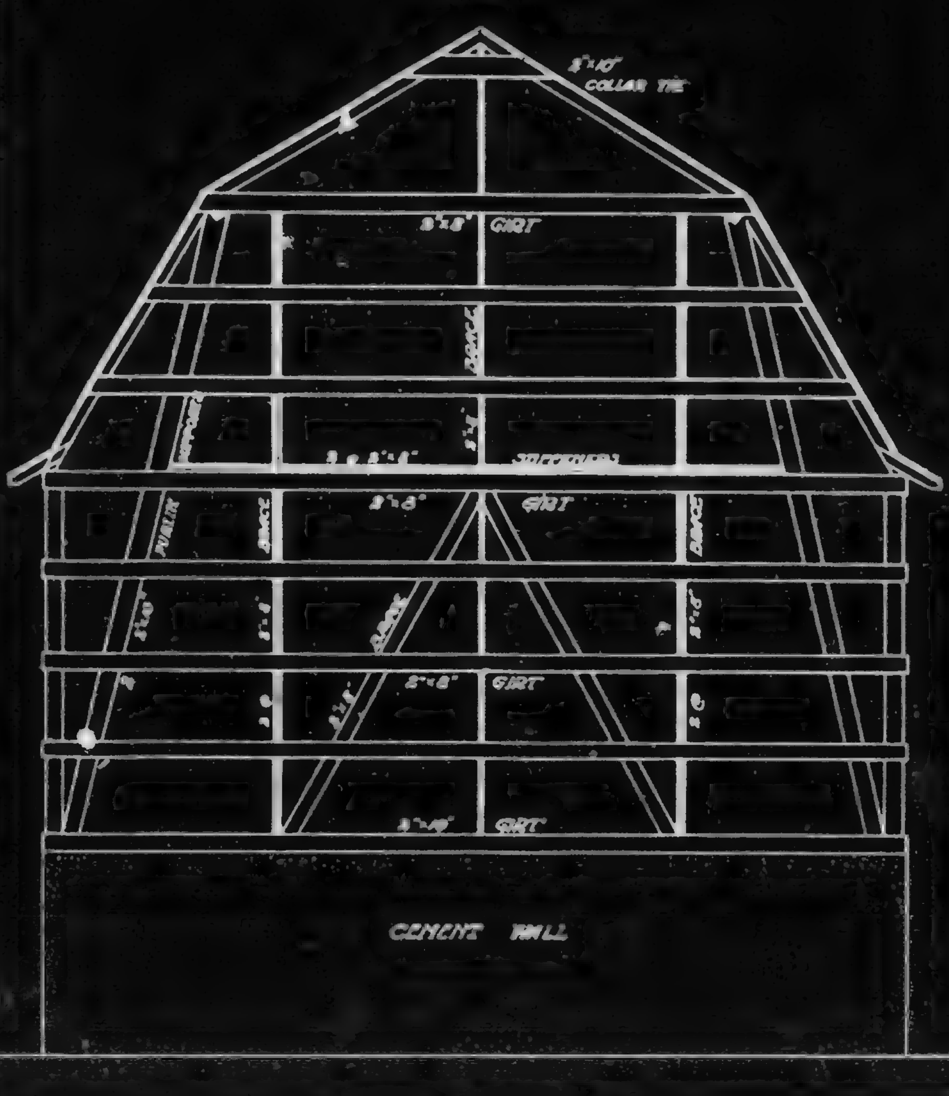
ADD FOR END BENT

End Studs	7 2 x 8 12-0	7 2 x 10 14-0	7 2 x 8 12-0	7 2 x 10 14-0	7 2 x 10 12-0	7 2 x 10 14-0
End Studs	2 2 x 8 16-0	2 2 x 10 16-0	2 2 x 8 18-0	2 2 x 10 18-0	2 2 x 10 20-0	2 2 x 10 20-0
End Braces	2 2 x 8 14-0	2 2 x 10 16-0	2 2 x 8 14-0	2 2 x 8 16-0	2 2 x 8 14-0	2 2 x 8 16-0
End Braces	2 2 x 8 16-0	2 2 x 10 16-0	2 2 x 8 18-0	2 x 8 18-0	2 2 x 8 18-0	2 2 x 8 18-0
Sills	6 2 x 8 12-0	6 2 x 8 12-0	4 2 x 8 12-0	4 2 x 8 12-0	6 2 x 10 14-0	6 2 x 10 14-0
Sills			2 2 x 8 14-0	2 2 x 8 14-0		
Stiffeners	52 Lin. ft. 2x8	52 Lin. ft. 2x8	56 Lin. ft. 2x8	56 Lin. ft. 2x8	60 Lin. ft. 2x8	60 Lin. ft. 2x8
Girts	303 Lin. ft. 2x8	303 Lin. ft. 2x8	320 Lin. ft. 2x8	320 Lin. ft 2x8	345 Lin. ft. 2x8	345 Lin. ft. 2x8
Furring	42 Lin. ft. 2x6	42 Lin. ft. 2x6	48 Lin. ft. 2x6	48 Lin. ft. 2x6	52 Lin. ft. 2x6	52 Lin. ft. 2x6

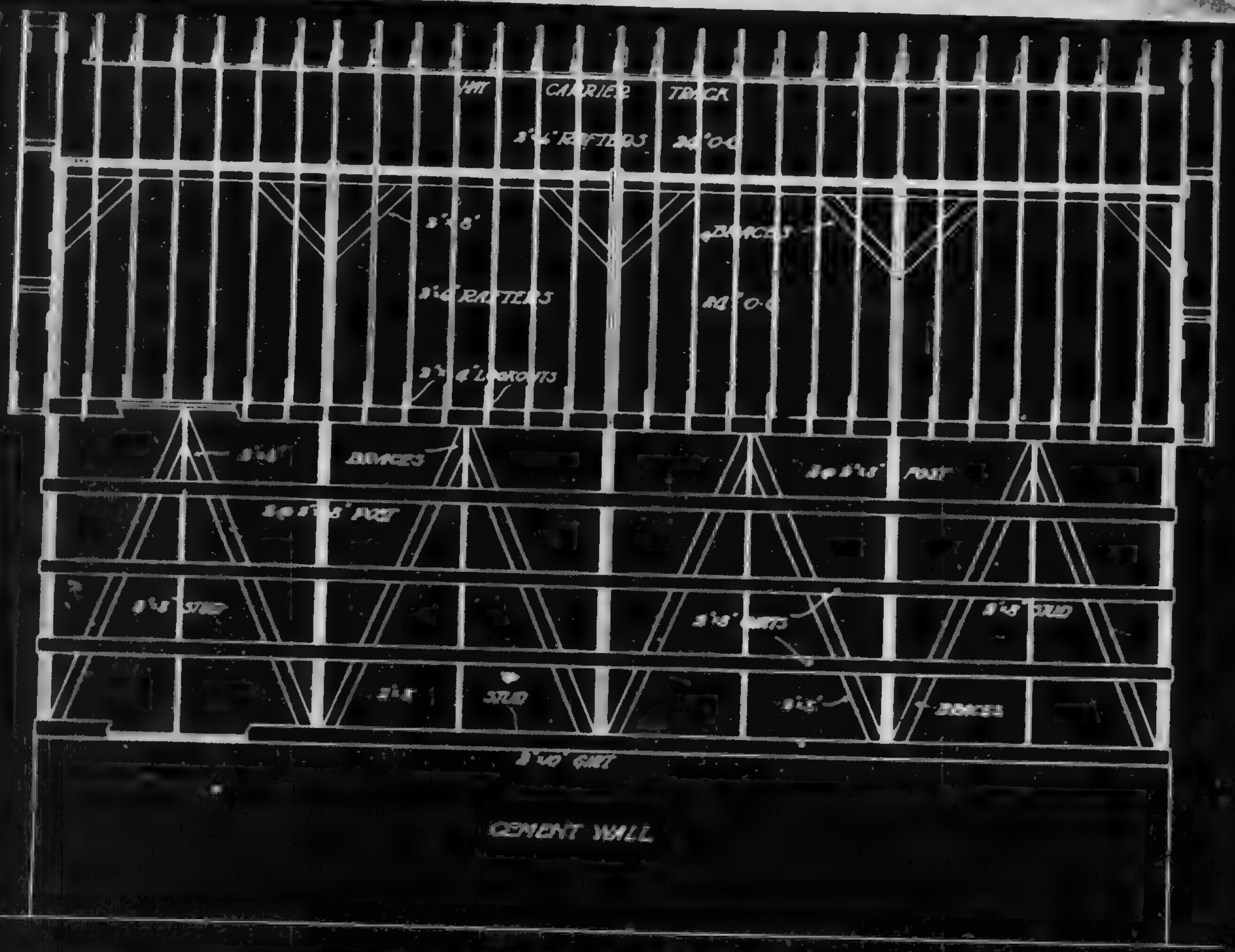
The Intermediate Bill of Material includes all necessary materials for raising the truss complete, but does not include any material that runs the longitudinal way of the barn, such as purlines, plates, girts, etc.

The End Truss includes all material necessary including sills, plates, girts.

The pitch of the roof can be varied to suit any stock length of lumber. The above bill of material is based upon standard barn roofs.


2"x10"
COLLAR TIE
2"x8" GIRT
BRACE
2 x 8"x4" STIFFENERS
2"x8" GIRT
PURLIN
BRACE
BRACE
BRACE
2"x8" GIRT
2"x10" GIRT
CEMENT WALL

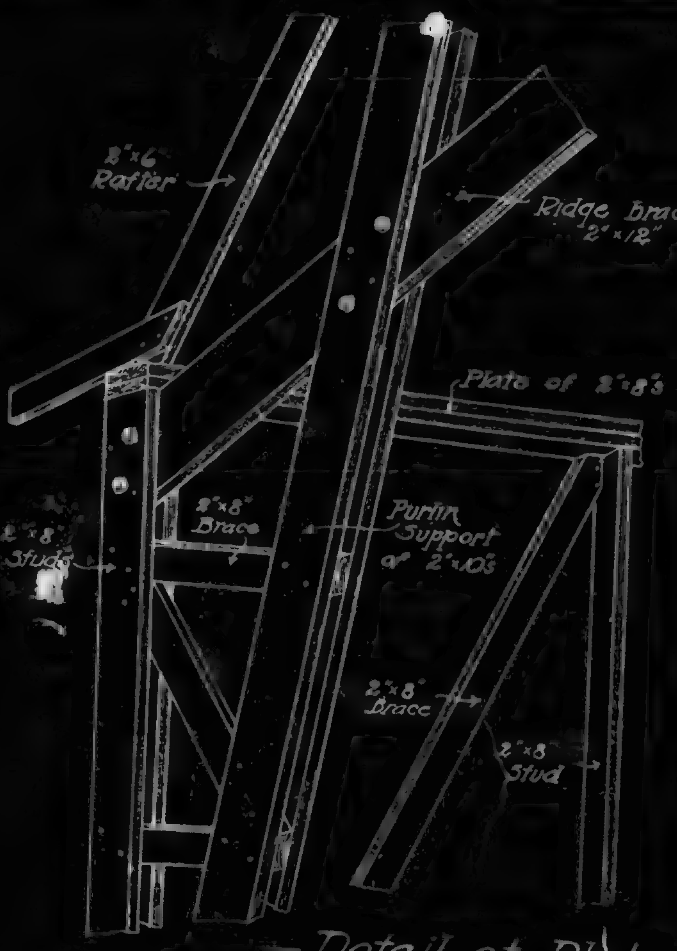
END BENT



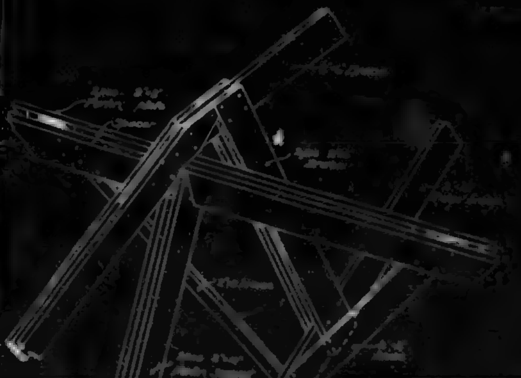
SIDE FRAMING

Barn of Miss A. Ogilvy, Nantel, Que., burned to ground without injury to the BT Steel Stalls.

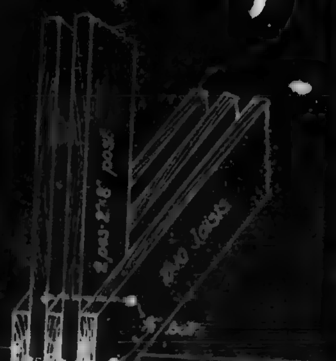
Barn of Miss A. Ogilvy, Nantel, Que., Steel Stalls uninjured by blaze.



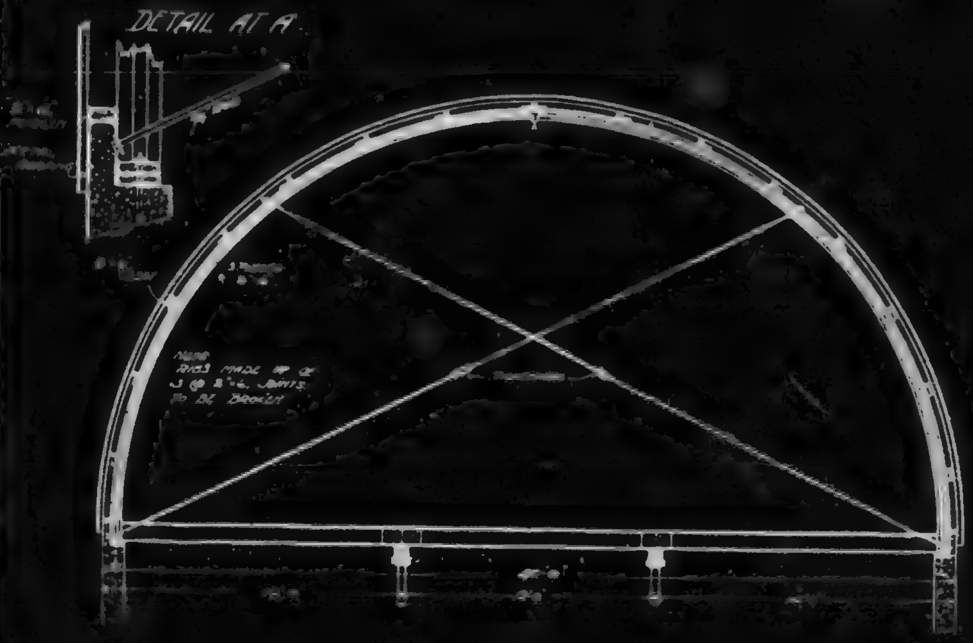
Detail at Plate.



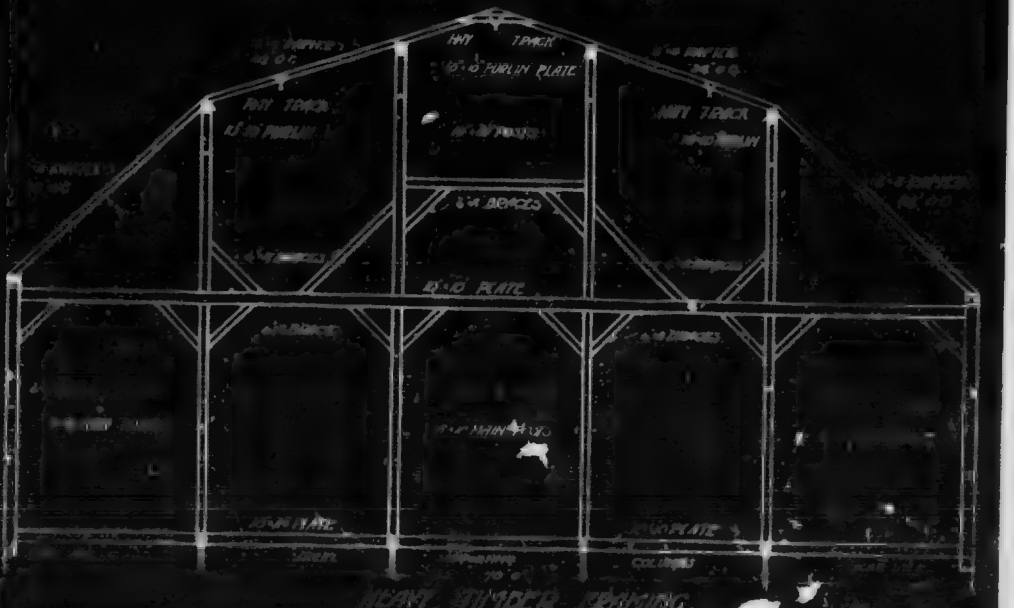
Details of Joint of purlin plate



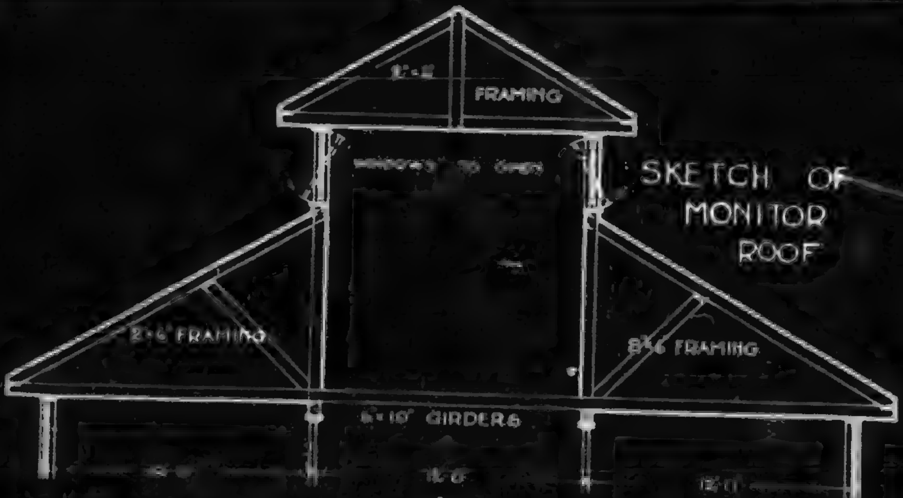
Detail at bottom of Truss.



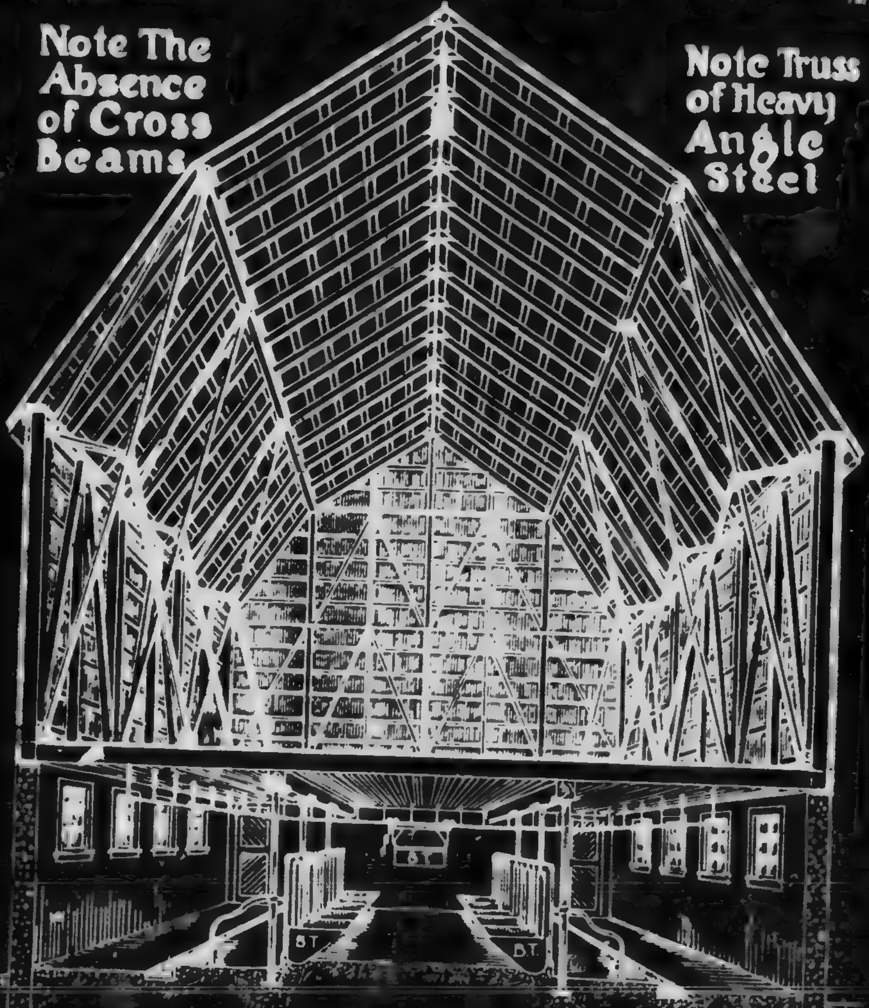
FRAMING FOR CIRCLE ROOF



HEAVY TIMBER FRAMING



SKETCH OF MONITOR ROOF



Note The Absence of Cross Beams

Note Truss of Heavy Angle Steel

Steel Truss Barn

Barn of Col. Robertson, Williamstown, Ont.

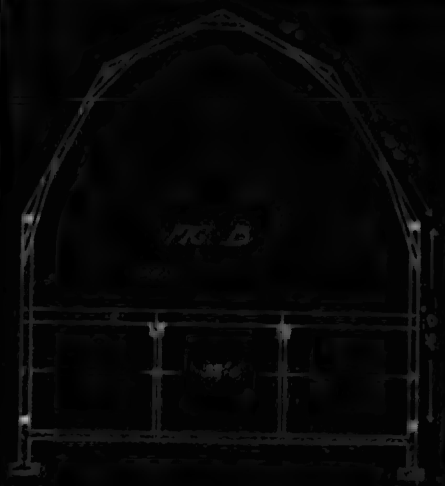


FIG. B

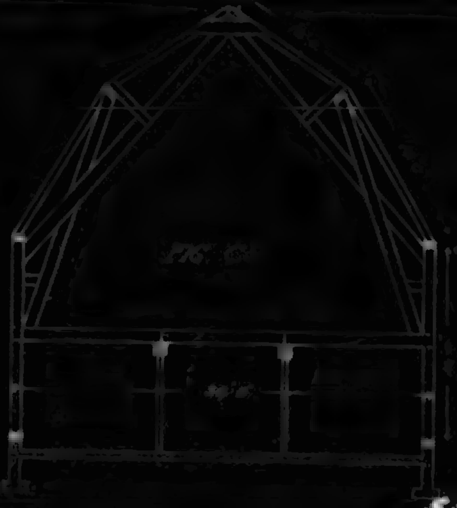


FIG. [illegible]

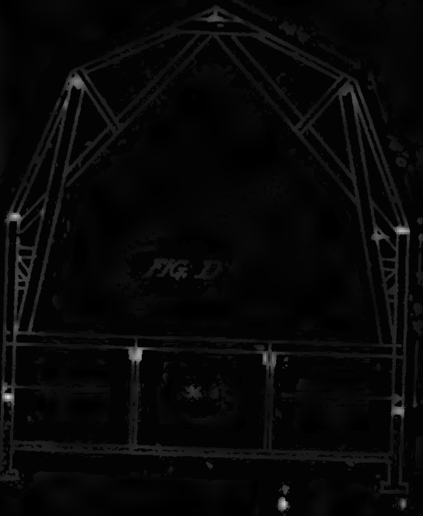


FIG. D

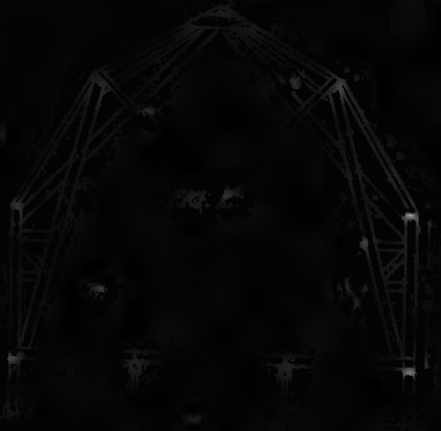


FIG. [illegible]

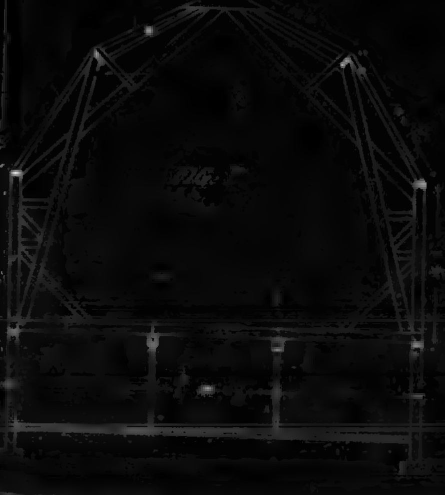
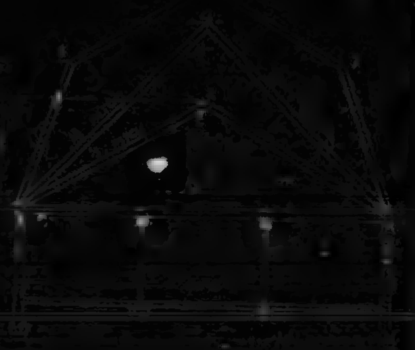


FIG. [illegible]



Wide Barn Frame, Circle Roof, Heavy Timber Frame, Steel Truss Frame

In a wide barn, at least two hay tracks should be used. Page 22 illustrates the framing for such a building. There is no interfering construction between the first and second run of purlin plates and posts. Framing for circle roof is also shown on page 22. A photo of a heavy timber frame barn appears on page 14. The Steel Truss frame is shown on page 23.

Roof Pitches

On the page opposite there is an illustration of the different types of roof pitches. We recommend the "hip roof" denoted by figures 1-5-6-7-3. Observe that it allows 24 feet of mow space, while the other styles only give 20 feet and 12 feet. The style 1-4-3 is very common to-day, but 1-2-3 has gone out of use almost entirely.

The advantage of this roof for storage space and appearance have been mentioned. If a horse fork is being used, it must register in the car at the top of the barn with its bundle, which requires more room than given by the roof 1-4-3. The greater part of the hip-roof has a very steep slope so that the water runs off quickly and does not get the chance to rot the shingles given by the other two.

Also observe the framing for different widths on the opposite page.

Cheaper Plank Frame Construction

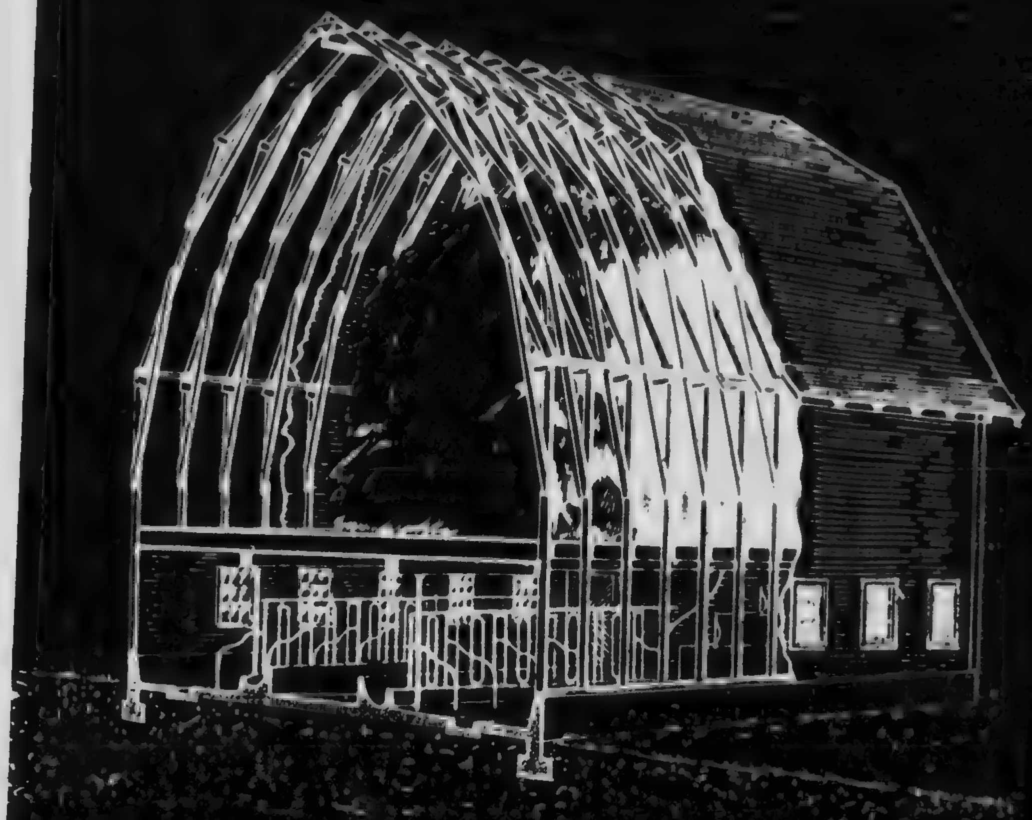
The next two pages, 28 and 29, illustrate a style of framing which is somewhat less costly than even the plank frame construction shown on pages 18, 19 and 21 and described on page 15. It is a satisfactory structure to be used in barns not over 36 feet wide.

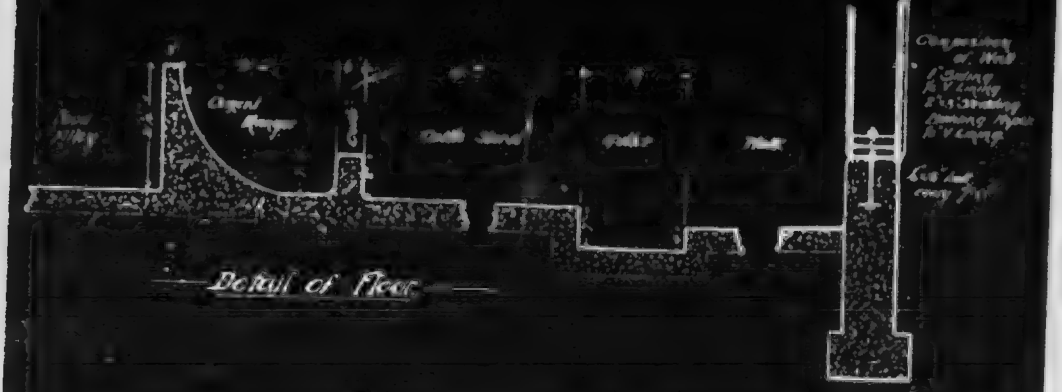
As with the other method of framing, 2-inch plank is used entirely. Plank is bolted to sills as before and studding is spaced two feet so that stock sizes of materials can be used without much waste.

The difference between the two methods of framing is apparent upon comparison. The first method requires the construction of well braced trusses tied together by lower "cords" and spaced every 12 or 14 feet. Between these and running across the barn parallel to them at intervals of 2 feet are the joists. The joists rest on the beams and the walls. Both joists and cords are made up of three lengths of plank. The latter method requires the bracing of each rafter, the rafters and studding thus forming a truss every two feet. There are no lower cords, but every joist is spiked to the studding to tie the building together. The joists rest on the beams in the barn and each end on a ledger or ribbon which runs along the full length, studding being notched an inch to hold ribbons more firmly.

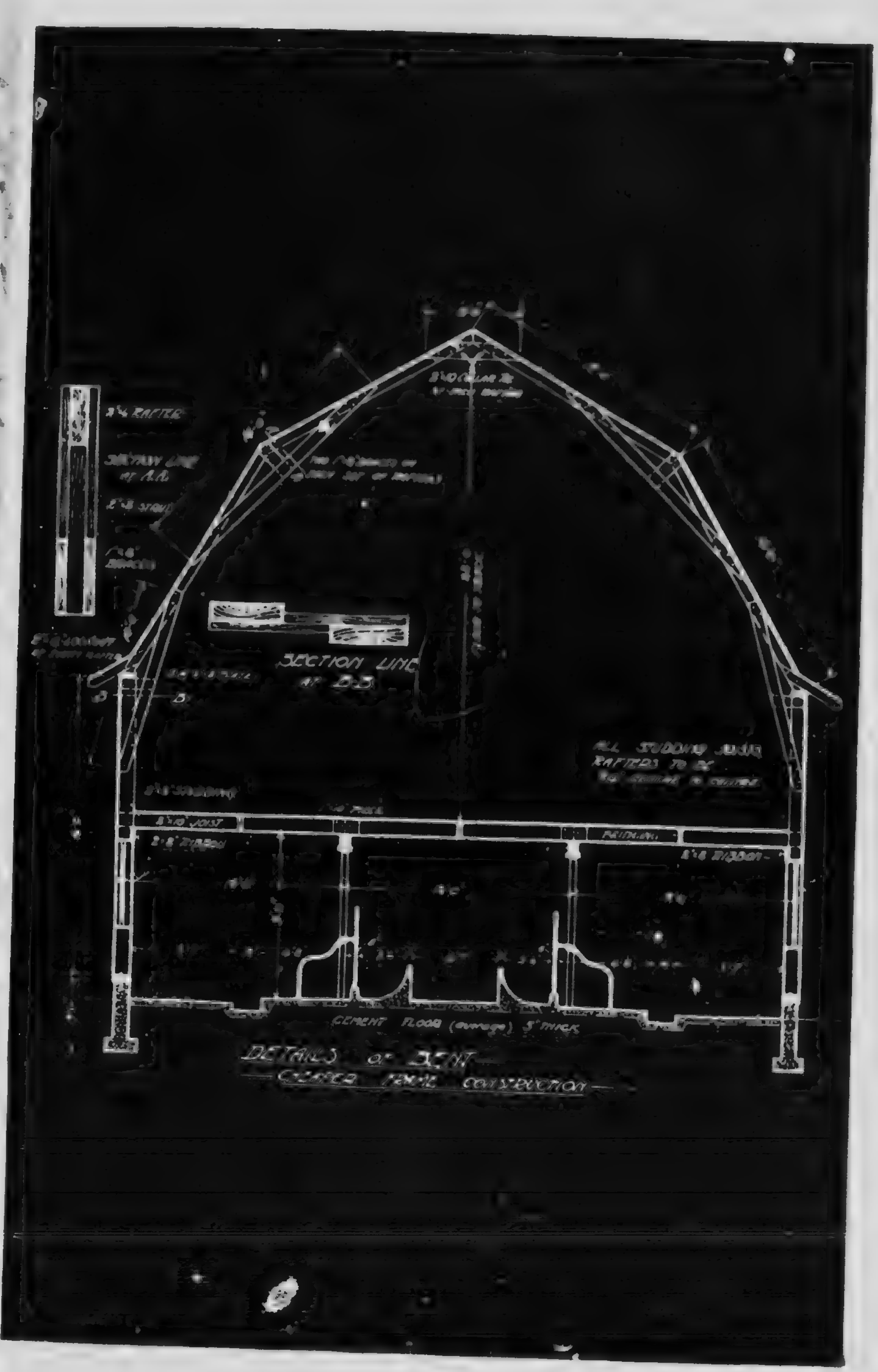
In construction of joists or any other part where a double thickness of plank is required, joints must always be broken.

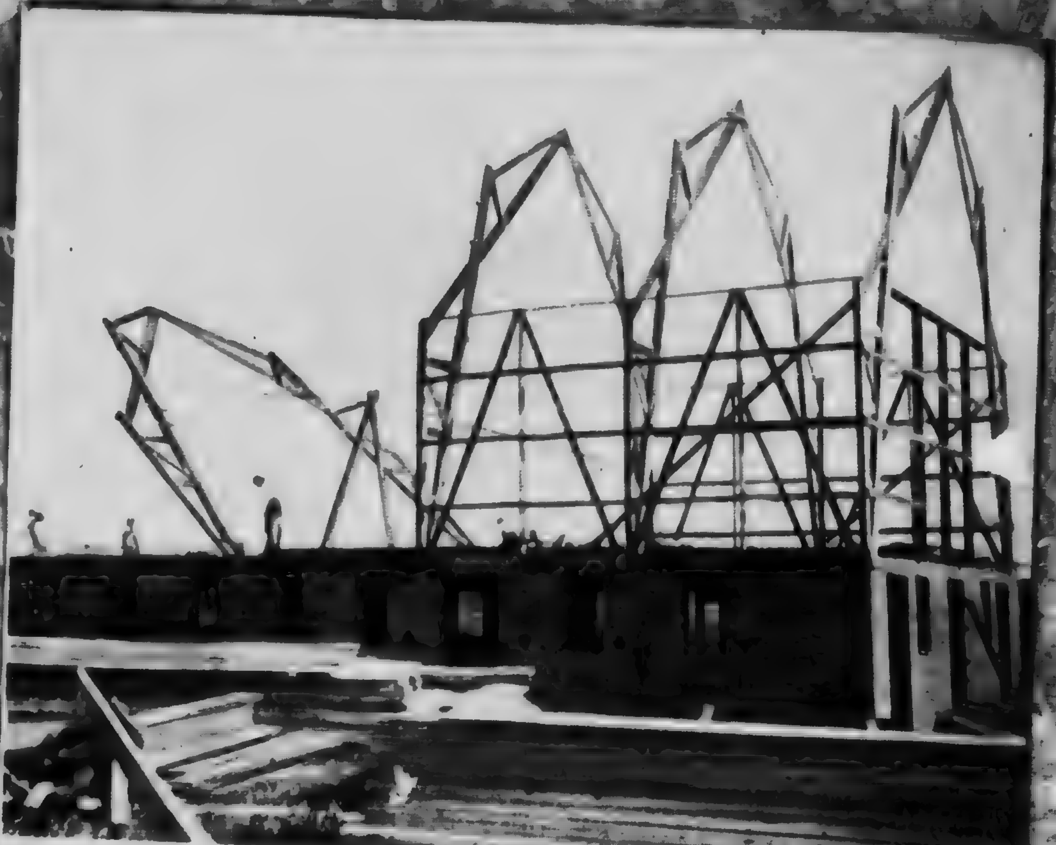
The cheaper frame construction requires 100 feet less of lumber than the other method for every 16 foot length of barn. This includes every truss and every 16 feet of studding and other framing it carries





Detail of Floor


2"x6" RAFTER
SECTION LINE AT A.A.
2"x8" STRUT
SECTION LINE AT B-B
ALL STUDDING AND RAFTERS TO BE
CENTER TO CENTER
2"x10" JOIST
BRIDGING
2"x8" RIBBON
CEMENT FLOOR (average) 5" THICK
DETAILS OF BENT
CHEAPER FRAME CONSTRUCTION



The Roof

For roofing, shingles are cool and are easy to get in many parts of the country. They are not, however, as durable as a good galvanized roof, which has the further advantage of protecting the barn from lightning.

Erecting a Plank Frame Barn

After the foundation is in, together with the proper footings for the supporting columns, and the frame for the first storey wall complete, the supporting columns are put in place. It is important that the footings for the columns be of ample size: if they are not, the building may settle, cracking the concrete floor and doing other damage. The footings for a one-storey barn should have a base of at least 16 inches x 16 inches and should be 10 inches deep. For a two-storey barn they should be 24 inches square and 12 inches deep.

We recommend metal columns and when they are used the bottom of the column should be two to four inches below the finished floor line, depending upon the method of finishing the floor. When these columns are in place and the concrete set, the girders may be laid.

The floor joists are next put in, and a temporary floor laid on them so that the workmen can move about freely while raising the trusses. Cut and put together the first truss according to plan as on pages 18 and 21. When this first truss is completed, lay it on the floor and build the other trusses on top of it, to insure absolute accuracy in all joints and measurements

When all the trusses have been finished, the top or end truss is placed in position at the end of the barn. This is usually done by placing the feet of the truss at the place where they are to rest when in position with the top of the truss towards the centre of the barn. Blocks are then spiked to the joists at the proper points so as to keep the feet of the truss in place while being raised: the feet of the truss rest against these blocks and pivot on them.

A gin pole is erected at the end of the barn in the centre, leaning at an angle of about 45 degrees toward the centre of the barn: a block and tackle is rigged, the rope passing over the gin pole and attached to the upper part of the truss.

A horse or team is hitched to the block and tackle and the truss quickly raised to position. A few men with guy ropes are necessary to steady the truss while being raised. As soon as the first truss is up it is braced in position. The second truss is raised in like manner, and as soon as it is up the girts are added, as shown on the opposite page. Then one after the other the trusses are put in place, the girts being spiked on as you go along. The last two trusses, when laid in position for raising, will project over the end of the barn. The projecting portion is supported by temporary props, which are removed when the truss is being raised. The end girts can be added at any time convenient.

To put on the plates, no scaffolding is needed, since it is not difficult to climb on the truss itself.

The next step is to put the purlines in place, and raise to position with block and tackle.

Before putting on the rafters and cornice, the siding is nailed on, because it can be done more conveniently before the rafters and the roof boards

Stable Doors

In providing for stable doors, see that stock sizes will be used. Have doors as high as possible. The split door, opening both ways, is best. Horse stable doors are generally made 5 feet wide and cow stable doors 4 feet wide.

Doors for Manure Carrier Track

Fig. 206 show a hinged doorway fitted the best possible way for an overhead track. The doorway should be the full height of the stable ceiling or main sill. First run the track out through the doorway as high as possible, cutting a narrow piece out of the top of the door frame if necessary, as in Fig. 205. Then neatly cut a section from the upper corner of the doorway opposite the hinges, equal in depth to the distance from bottom of track to the door jamb and long enough just to allow the door to close tightly against the track. Nail the piece removed from around the track securely in the door frame and trim just sufficient off the edge next the track to allow the travellers to pass it. Fig. 206 shows clearly this piece removed from the door and nailed to the upper left hand corner of the doorway. When the door is closed, a very small opening is left to one side of the track and there are no small doors to bother with.

Fig. 205 shows how a doorway with a fanlight should be fitted for an overhead track. The track should be hung just far enough below the main sill of the barn to allow the carrier travellers to pass underneath it. It is very important to keep the Manure Carriers as high as possible in the stable so that it will be well above the manure pile or waggon when dumped. The underside of the doorway lintel should be at least as high as the underside of the main sill. In the illustration the underside of the sill (b) and the plate (c) are on a level, so a piece 2 inches wide is cut out of the top of the door frame to allow the traveller to pass through as high as possible. The severed cross piece is securely spiked to the plate. The transom between the fanlight and the doorway is cut open to the width of 12 inches and a box frame is set in, supporting a pair of small doors which close tightly against the track.

The lower illustration on page 33 shows how the door should be fitted for use with the Spring Steel Track Hinge. (See Fig. 435, page 274.) The transom should be hinged at the top and a properly shaped piece cut out of the bottom of the transom. The transom is hinged up and hooked there, so as to be out of the way, while the cleaning is being done. When the work is complete, lower the transom to close the open space.

Barn door track is recommended in preference to hinges. Where the track is used, there is no trouble with doors slamming in the wind. Sliding doors are not blocked by ice or snow and no paths have to be dug for them. By the use of weights, they can easily be made self-closing. There is no sagging weight on the sides of the barn. The trouble with broken hinges and damage to the walls where they are fastened is avoided. A tube track is preferred, rather than a round track. The hangers run inside the tube and are not affected by the weather.

are in place, there being nothing to interfere with nailing on the boards under the cornice.

Plenty of Sunlight

Some people have the idea that a dark barn is snug and comfortable. They think that windows make a barn cold. As a matter of fact, a well-lighted barn is warmer at any time of the year than a poorly-lighted one, other conditions being equal. Dark barns are more likely to be damp. They form an ideal seed bed for establishing tuberculosis, rheumatism and kindred diseases in the herd. Sunlight is the greatest disinfectant and disease preventive in the world, and it does not cost you anything.

Municipal authorities, food inspectors and health officers insist on having plenty of light provided in dairy barns. At least 4 sq. ft. of window space should be allowed for every animal. In designing new barns we specify a window about 2 feet 10 inches x 4 feet 6 inches every 3 feet. This is preferable to larger windows set at greater intervals.

Windows should be flush on inside to prevent accumulation of dust. If they cannot be built this way, splay the wall round them. Splaying allows the sunlight to spread out and flood all parts of the cattle stand. Place the windows 3 feet 6 inches or 4 feet above stable floors. Run them vertically not horizontally, for much more light can enter the vertical window.

For the sake of effective lighting, barns should run north and south. The long rows of windows will thus be placed on east and west sides where they will receive the direct sunlight, which is most powerful in destroying disease germs. Very little direct sunlight enters at the north.

Sunlight is usually interfered with seriously in bank barns. Some overcome the difficulty by removing dirt from the top of the bank.

For our cold climate, stable windows should be double glazed, especially if the barn is in an exposed position. Single sash window is the kind to use.

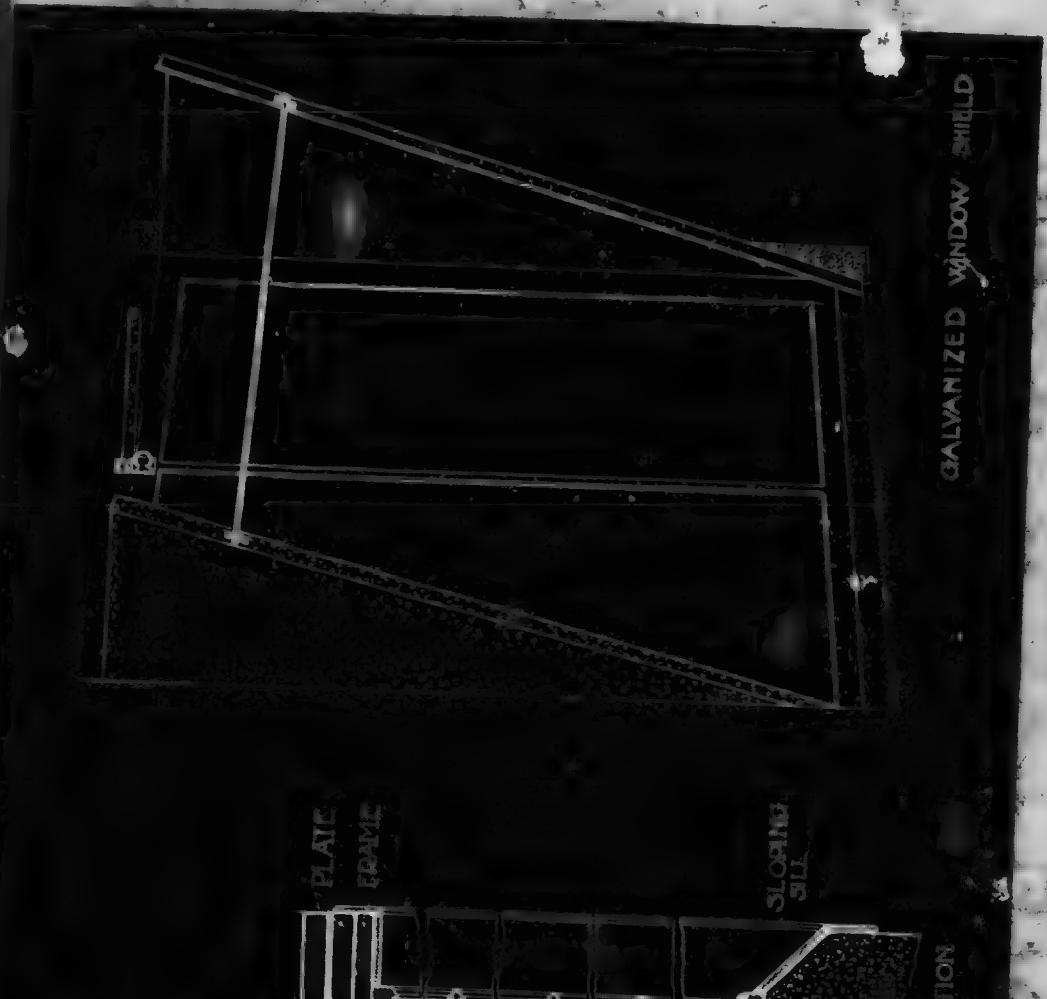
One-story dairy barns are best lighted when built with a monitor roof. Light enters through the top as well as the sides of the barn. This form of construction is illustrated by the photos of the C.P.R. Barn, pages 40-41.

The sanitary steel stalls should be used so that sunlight will not be obstructed.

Windows may be hinged at the bottom and allowed to swing inwards, preventing direct drafts on the cattle. When open they rest against galvanized window shields, illustrated on page 35. Window sizes are governed by sizes of panes. There are 8 x 10, 10 x 12, 10 x 14, 12 x 14, and 10 x 16 stock sizes. Twelve-light windows are usual. To save expense, always use a stock size of windows.

A 12-light window of 8 x 10 panes is 2 ft. 4 inches x 3 feet 9½ inches.

A 12-light window of 10 x 12 panes is 2 feet 10 inches x 4 feet 6 inches.


GALVANIZED WINDOW SHIELD
PLATE
FRAME
SLOPING SILL
SECTION
CASING
CASING
CASING
CASING
WINDOW

Ventilating the Barn

In 1756 an Indian Rajah shut 146 English prisoners in the Black Hole of Calcutta. They were confined in a cell 14 feet 10 inches by 18 feet and having but two small windows.

What happened?

We all know the story. All but 23 died during the night.

Starvation was not the cause of death, not thirst, not physical violence.

They died for lack of air. Lack of a current of fresh air to pass through the building, the foul air being carried off above. In other words, lack of ventilation killed them.

John Jones had a dairy cow. He fed her well. Gave her lots of water. But she always was a "Boarder" cow, never paid a profit, and by and by she had to be killed for tuberculosis.

What was the cause?

If you don't know the story, we will tell you.

More vitally essential to the life of that cow than water or feed, or kind treatment, was fresh air. She required just 7,718 pails of it in 24 hours, 5⅓ pails every minute of her life. Pile up all the feed she could possibly have consumed in a day. Pitch all the water she needed on top of that. Weigh them. The weight will not equal half the weight of air she must take into her system if she were to live.

What's in the air?

Oxygen. That's the life-giving element.

There is also nitrogen and there are other quantities of other gases. But its the oxygen that combines with the food matter carried by the blood and gives the cow vitality, gives her strength, power to produce milk, power to resist disease.

But the cow had air. It was stable air, and she breathed it in over and over again. Yet it was air.

Was it fresh air? Remember that when air is discharged from the lungs it contains 4 per cent. of Carbon Dioxide, which is deadly poison. A cow breathes out over 307 pails of this poisonous gas every day. Put a dog or a cat or a cow or any other animal in a room of this undiluted gas and death will follow in a few seconds.

As quickly as that gas is breathed out it must be removed. And it must be replaced by pure air from the outside.

7,718 pails of fresh air must be brought to every cow in your stable, every 24 hours. More than that for every horse. Less than that for smaller stock.

Every twenty-four hours 7,718 pails of foul air have to be taken out again and in that foul air are 307 pails of poison gas.

That's your problem.

John Jones had the same problem. But he tried to bring the fresh air through 6 small tiles at the top of the wall and a broken window. Sometimes he left the doors open. But on the first cold day he shut them again and stuffed a sack in the window. So the cow got sick and died.

To create and regulate a current of fresh air which pours into every corner of the building and is carried out again when it is foul, is ventilation.

But, ventilation does more than carry off bad air.

It takes away the moisture.

Hold a mirror in front of your mouth as you breathe and you will observe that the surface is quickly covered with tiny drops of water. There is water vapor in the breath and it condenses on the glass.

A cow breathes out moisture like this, and in 24 hours it amounts to 1⅓ gals. of water, 30 cows in a stable will load the air with 1 1-3 barrels of water daily.

Ever go into a barn on a cold day and see the steam rising like a fog? Its a sign that the air is saturated with moisture.

Excessive moisture in the barn is not only harmful to the cows, but rots the wood work, the sills and the timbers.

Good ventilation prevents the formation of ammonium carbonate. The carbon dioxide from the lungs unites with the ammonium fumes around the manure in the gutters, forming this carbonate. It falls as a whitish coating on the beams and the harness in the barn. This substance rots leather, woodwork and paint.

When ventilation is so important for the sake of your barn and the health of your cows, it will surely pay you to install and operate a good system.

By actual test, it has been shown that cows in a well ventilated barn give more milk than the same cows could give in a poorly ventilated building.

Fresh air costs you nothing. A good system of ventilation is very inexpensive. It is not hard to install. It is easy to operate.

Do not build a barn without investigating this important matter.

Remember that there is no effective ventilation until you have a SYSTEM, that is. a number of intakes and outlets for the air, correctly installed, well controlled, and working with certainty in all kinds of weather.

Something more is needed than the crude practice of opening doors, allowing draughts to strike the animals, or the old idea that enough air could get through the knot holes or cracks in the walls to keep the animals supplied.

Many systems of ventilation are known. None of them are perfect. The two most widely used are the Rutherford and King systems. The King system is widely used in the States, but for our severe climate, the Rutherford system has proved much superior to any other.

The Rutherford System

Notice your kitchen stove.

You open the damper at the bottom. You allow a draught to pass into the fire. The oxygen of the air allows the fire to burn. The carbon dioxide and other gases are formed. They are hot and lighter than air, so they rise and pass out of the chimney.

The Rutherford Ventilation System is based on this old, simple idea, the animals breathe out warm air, and this with their body heat raises the temperature of the stable. The warm, foul air rises to the ceiling and escapes through the outlets above. As quickly as this, it is replaced by the fresh, cold air which comes in through the ventilating dampers or inlets below.

The King System

Those who favor the King System hold that foul air, charged with heavy carbon dioxide gas, is heavier than fresh air. Therefore, they say, it must drop to the floor. So they bring their fresh air into the stable at the ceiling and allow the foul air to escape through ventilators which come right down to the stable floors. The air in the outlets is warmer than the air outside, so must rise.

Advantages of Rutherford System

The Rutherford System is simpler and less expensive. Intakes are not costly. Ventilating flues can be built quite inexpensively and a neat cupola, costing but a few cents, framed to prevent snow or rain entering the flue. The King System, on the other hand, requires expensive and specially constructed cupolas.

The outlets required by the King System are built up from the stable floors. They are in the road and take up valuable space in the stable.

The Rutherford system will work well every day of the year, and under any climatic conditions. The King System has shown itself to be a decided failure in cold climates. There is a great danger that, unless a strong wind is blowing, the air current will be sluggish. It is necessary to force an air current by artificial means, and for this the costly cupola is required. In Canada the King System does not rid the barn of the humid air. There is condensation of moisture on the ceiling and constant dripping. One reason, is the fact that moist air is light and rises. The outlets of the Rutherford System, being at the ceiling, allow it to escape freely. But, with the King System, which seeks to ventilate the barn by lifting the foul air from the floor, there is no place for the escape of any moist air which rises to the ceiling.

Moist air is as hard on the animals as foul air, and they cannot stand within 10 degrees as much cold in a damp stable as in a dry one. It is one of the chief causes of tuberculosis.

Ventilation Intakes and Outlets

In order to ventilate a barn properly, there must be a certain amount of air space for each head of stock. Too many cattle in a stable make it difficult to ventilate without harmful draughts, for intakes and outlets have to be made very large. If there are too few, it is hard to keep the temperature up to the comfortable point and yet maintain a sufficient air current. Right here, let us say the low temperature does not always mean pure air. The air in the stable where the thermometer shows several degrees of frost may easily be most vile.

It has been found that the Rutherford System will work best when each cow has at least 600 cubic feet of air space. Horses require more and smaller stock less.

This 600 cubic feet has to be changed constantly; four or five times every hour of the day. 600 cubic feet of fresh air must be brought in and the same amount allowed to escape through the outlets. In some parts the government insists on a minimum air space for each animal.

With these requirements in mind, it has been found that for every cow in the stable, there must be at least 8 square inches inlet area. It is customary to install one intake large enough for several animals. The BT Ventilator, pages 43 and 230, has a maximum capacity of 48 square inches and will do for 6 cows.

The same ideas govern the size of the outlets. It is customary to provide almost twice as much outlet area as inlet area, or about 15 square inches for every mature cow. One big outlet vent is provided for a number of animals. A vent less than 18 x 18 or 16 x 16 at the very least is not practical. There should be one outlet 18 x 18 for every 20 cows in the stable. If outlets are bigger, air currents are likely to be sluggish, and if much smaller there will be danger of dripping.

Roughly, one outlet vent 18 x 18 will do for 20 horses. Care should be taken in placing the outlets that they do not interfere with the operation of a hay carrier track.

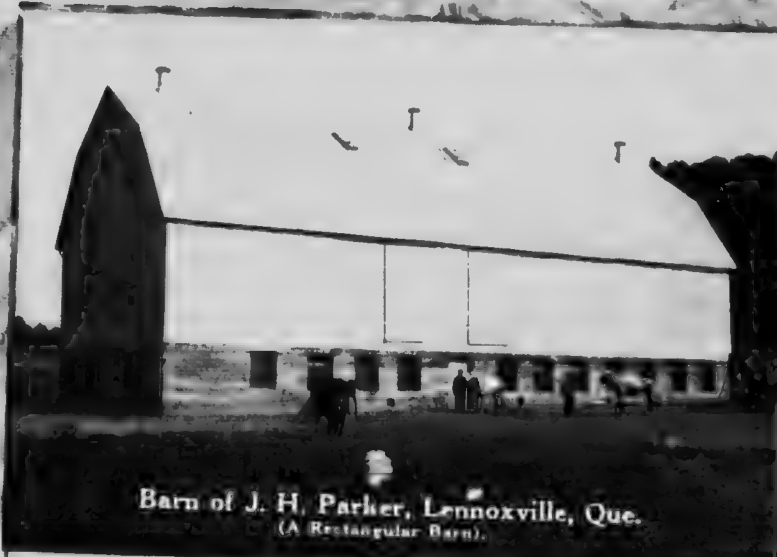
These figures apply to mature stock. If there are calves in the stable, it will take about four of them to use as much fresh air as a cow requires. Inlets are distributed around the walls to bring a current of fresh air through every part of the barn. Outlets are never placed opposite inlets as there would be a direct current between them and spots of stagnant air at other places in the barn. If there are two or more outlets, it is customary to place them on opposite sides of central passage and near opposite ends of the barn.

See illustrations on pages 44.

Ventilation Table

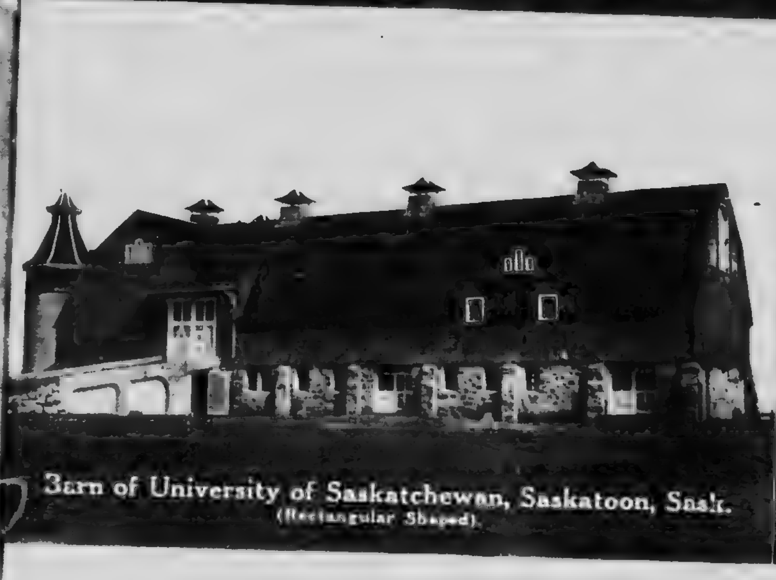
Number of BT Ventilators per head (Fig. 445, pages 43 and 230) is indicated in table below. BT Ventilators have maximum inlet area of 48 square inches.

Stock	Assumed Weight	Cu. Ft. Air Space	Cu. Ft. per Hour per Head	Inlet Area Per Head	Outlet Area Per Head	Number of Animals Supplied by 1 BT Ventilator
Horse	1,200 lbs..	985	4,925	9½ sq. in.	18 sq. in.	5
Cow	1,100 "	790	3,950	8 " "	15 " "	6
Hogs	160 "	302	1,510	4 " "	8 " "	12
Sheep	100 "	184	920	2½ " "	5 " "	18



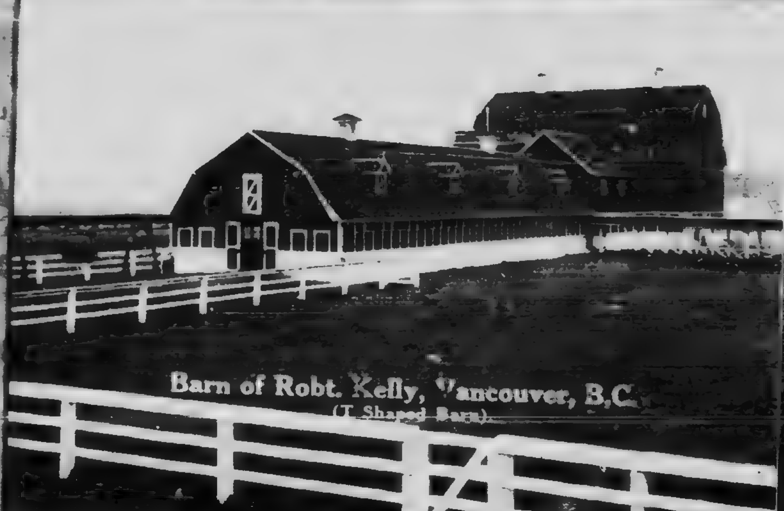
Barn of J. H. Parker, Lennoxville, Que.
(A Rectangular Barn).

C. P. R
(One Stor



Barn of University of Saskatchewan, Saskatoon, Sask.
(Rectangular Shaped).

Barn of Will



Barn of Robt. Kelly, Vancouver, B.C.
(T Shaped Barn).

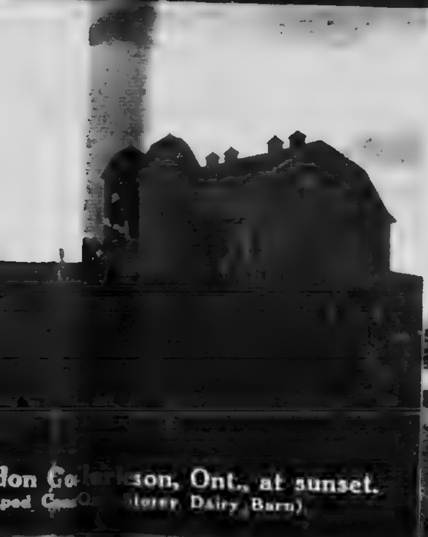
Barn of Gordon Co
(T Shaped Con

C. P. R. [illegible]re, Alta.
(One Storey with Monitor Roof).

[illegible]arn of Walker Sons, Limited, Walkervill[illegible]
(One Storey Dairy Barn).

of Willi[illegible]ngly, Man.
[illegible] Barn).

Barn of Walker Sons, Limited, Walkerville, Ont.
(Calf Barn).



don Go[illegible]son, Ont., at sunset.
ped Ga[illegible] Storey Dairy Barn).

Barn of Gordon Gooderham, Clarkson, Ont.
(Horse Barn).

Construction of Outlets and Inlets

Details of the ventilating shaft, outlet for same on the roof, and the ventilation intake, are given on page 43.

The outlet flue, like a good chimney, must be air tight. It should be constructed of two layers of number one matched stuff, ⅞ inch thick, with building paper or deadening felt between, to make it as nearly as possible a perfect conductor and prevent the cooling of the air in the flue. Corner posts are 4″ x 4″. It must be air tight, for every crack lessens the ventilating power. The interior surface should be smooth, having ample cross section area, and be built as straight as possible to prevent friction of air currents. In case of a slight angle, the cross section area of the angle should be increased 25 per cent. to offset friction loss. It must rise 15 or 16 inches above the top of the barn and be protected with a roof. It is not a good thing to use ventilating flues for hay chutes because the foul elements of the air being carried out are deposited on the hay and feed and returned to the cows. Tuberculosis can be spread among the whole herd in this way. Every outlet should have a controlling damper.

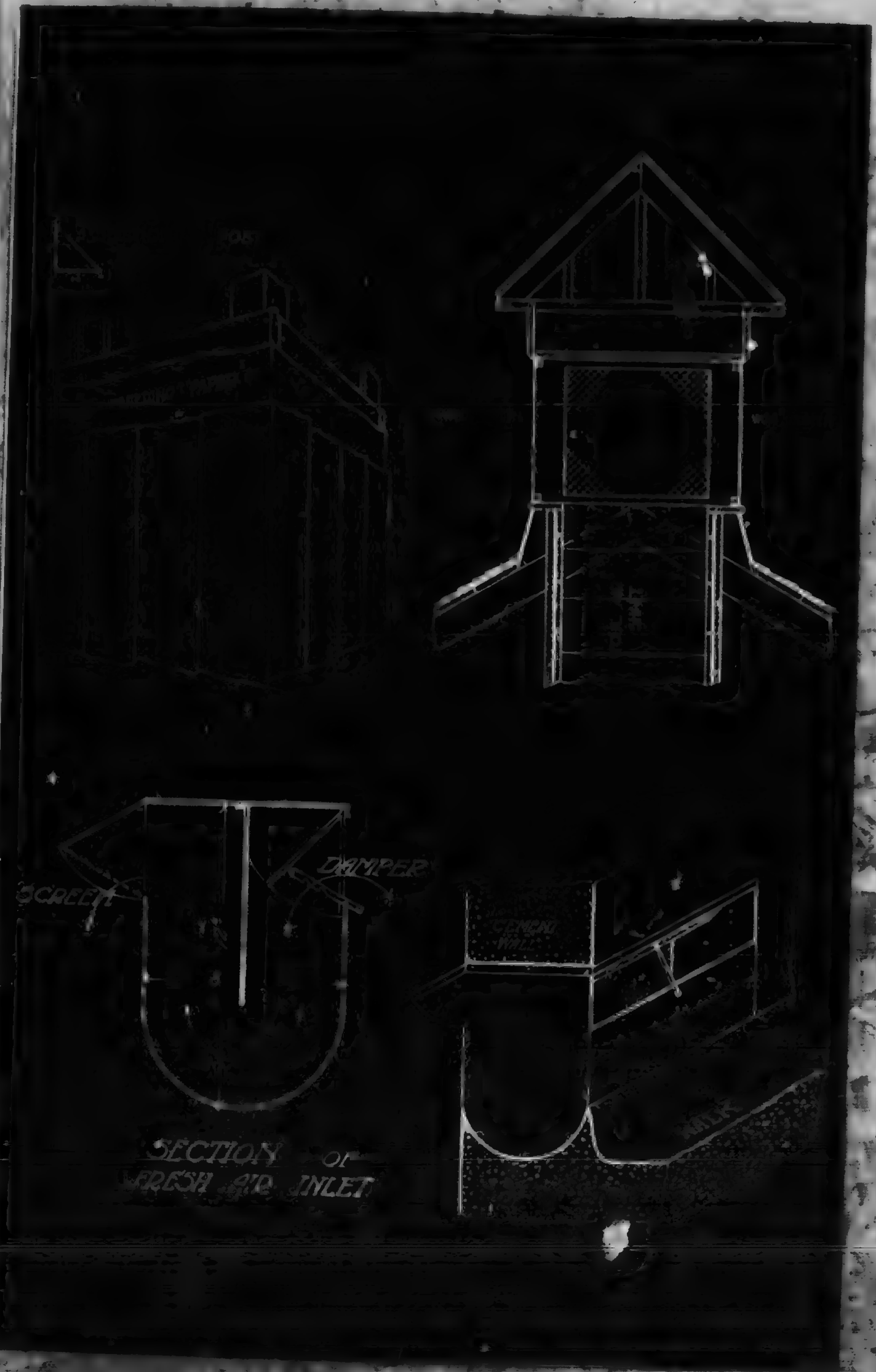
BT Fresh Air Inlet

The BT Ventilation Intake is illustrated on the opposite page. Its maximum area, 48 square inches, is not sufficient to cause injurious draughts on the stock. A hood on the outside prevents snow drifting in and a screen keeps out insects. The bottom of the inlet is placed on a level with the floor so the opening comes about 8 inches above the floor.

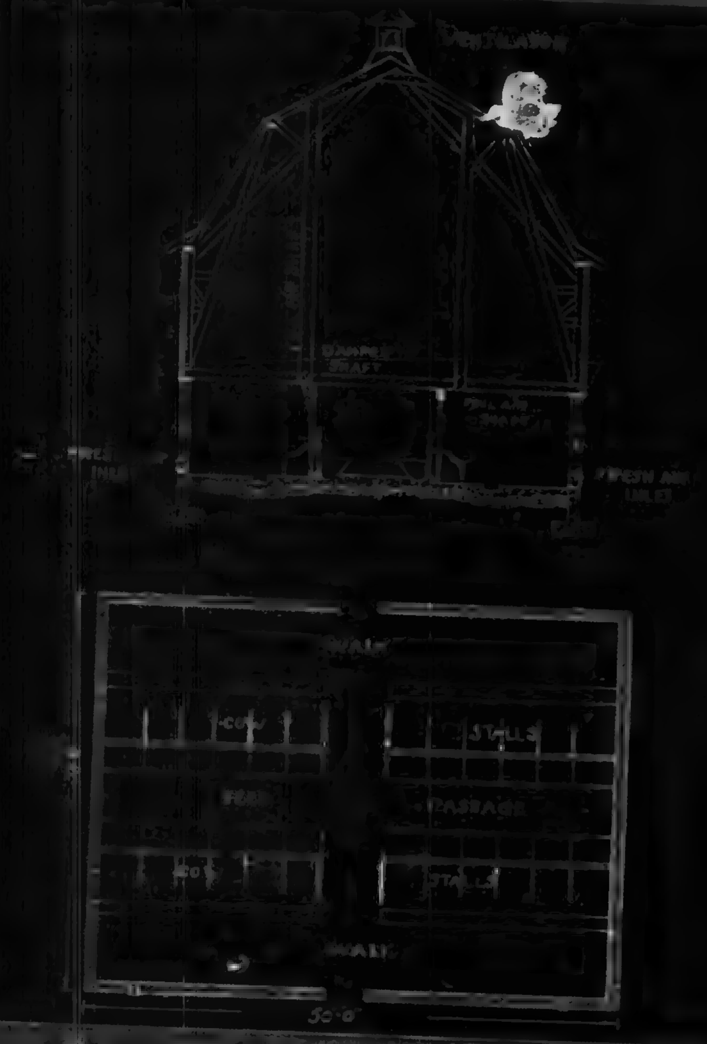
It is fitted with a damper so that air currents can be controlled. This is an important point to observe in the construction of both inlets and outlets. Dampers are just as essential in them as in a stove pipe. Changing temperatures and velocities of air currents have to be provided for; and often some of the stock are removed from the stable so that a much smaller current is required.

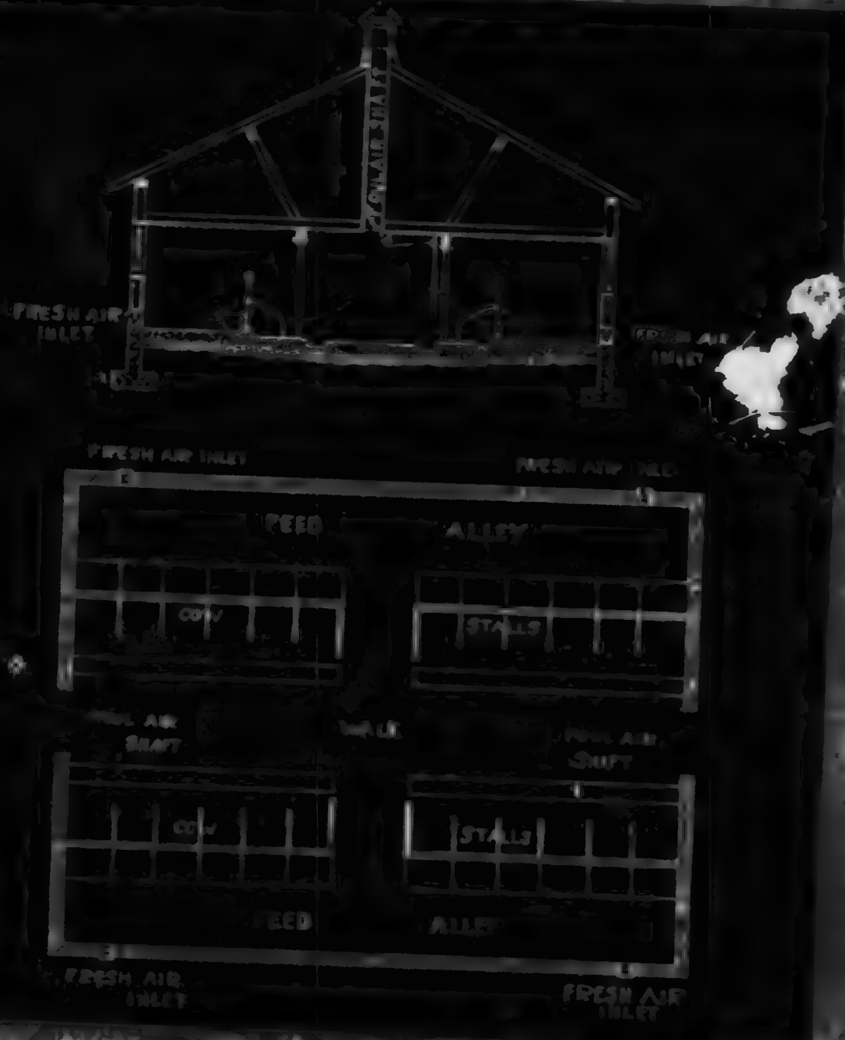
Any intake, whether constructed of steel, or wood, or tile, must adhere to one principle, viz: it must direct the air current downward. Otherwise there will be a direct harmful draught on the cows. As well, a straight tile or box in the wall sometimes allows currents of air to pass out as well as in, upsetting the whole ventilation system.

Dampness in the stable is not always the fault of ventilation. Stone walls or solid cement walls must be wood lined, otherwise no system of ventilation would ever keep them dry in very cold weather. It is better to build walls with more or less of insulation or dead air space to prevent too rapid conduction of heat. Ceiling should be ceiled over beneath the joists.



SECTION OF FRESH AIR INLET


VENTILATOR
DAMPER SHAFT
FOUL AIR CHAMBER
FRESH AIR INLET
FRESH AIR INLET
WALK
COW
STALLS
FEED
PASSAGE
COW
STALLS
WALK
50'-0"


FOUL AIR SHAFT
FRESH AIR INLET
FRESH AIR INLET
FRESH AIR INLET
FRESH AIR INLET
FEED
ALLEY
COW
STALLS
FOUL AIR SHAFT
WALK
FOUL AIR SHAFT
COW
STALLS
FEED
ALLEY
FRESH AIR INLET
FRESH AIR INLET

Layout of Stable

Usually the first question to decide, once the general design and size of barn has been settled, is the method of placing the cows, whether to have them facing in or out. There are arguments both ways, and we will give them all.

Face in:

1. You get the light on the business end of the cow.
2. You have better light for the greater part of your stable work.
3. You can see better whether cows' udders are clean or not.
4. It is easier to feed along a central passage, as the feeding of both rows can be done on the same trip. It also helps in the arrangement of the feed room to have just the one passage. Whether cows face with heads in, or out, each gutter must be cleaned separately, so no time is saved in cleaning the stable by having the cows face out.
5. Modern stable construction methods always make feed passages and mangers much higher than cattle walks and gutters. Therefore, when cows face in, the central part of the stable is highest and the sides the lowest, since the gutters are near the sides. You have drainage towards the outside, which is easier to arrange than drainage towards the centre.
6. It is not well for the cows to stand facing the light.
7. The ventilating system works better when cows are placed with heads in, as the outlet flue can be directly above their heads to remove the foul air.
8. Supporting posts, when cows are heads in, come near the head rail, at the narrowest part of the animal and do not take up the room she needs to lie in.
9. There is less confusion in letting the cows in and out as they have only one place to go to.

Face out:

1. Cleaning, milking, and three-fourths of the work is done behind the cows. Therefore, centralize cattle walks, not feed passages.
2. No danger of cows breathing into one another's faces.
3. Herd does not have to be divided in tying up the cows.
4. Cows are sized up from behind. The face-out arrangement shows up the whole herd at the one time.
5. Advocates of this arrangement say that when cows face in the manure from the gutter spatters on the walls.
6. This arrangement is best when desired to drive through the stable for cleaning.

Barn of [illegible], Coaticook, Que., showing [illegible] and Fig. 535 [illegible]

Barn of Sh[illegible] Bros., Cloverdale, B.C., showing [illegible] 4 Clamps

[illegible] Wallace, Que., showing [illegible] Clamps

BT Supporting Column—Fig. 421

Heavy wood posts obstruct sunlight.

They take up valuable space in the stable. They are in the road no matter where they are placed. They are a nuisance if placed in the passages, and they restrict the freedom and comfort of the cows when placed anywhere in the cattle stands.

They are not durable. They are quickly destroyed in case of fire. Sooner or later they are rotted by the manure, stable acids, and moisture.

From the standpoint of sanitation, they have all the disadvantages of the old-fashioned wood stall. They are not clean. No amount of time or work will keep them as clean as the steel.

They spoil the appearance of any stable.

We urge you to complete your sanitary steel equipment by using the BT Steel Supporting Column. A glance at the photos of this catalog will bring out their advantages more forcefully than can be done with words. They are just as important in making your stable up-to-date as the steel stalls.

Any BT Steel Column is quite as strong as a wood post three times the size.

They are not expensive. In the long run, they cost less than wood.

Strength of BT Columns

Loads which any BT Column will support are given below:

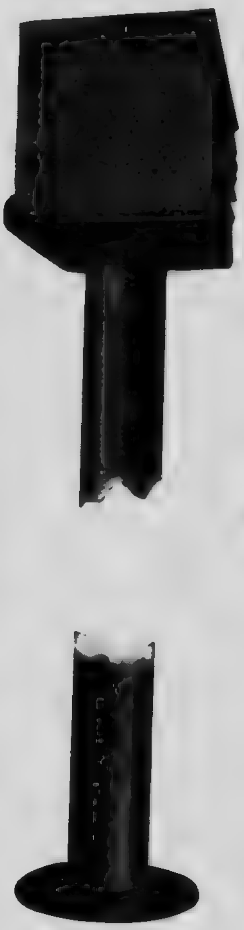
Nominal Outside Size Inches	Weight per foot	Safe Load in Pounds for BT Steel Columns			
		7 feet	8 feet	9 feet	10 feet
3½	9.05	22860	22040	21320	20500
4½	12.49	34502	33560	32660	31760
5½	14.56	38906	37520	37520	36520

If desired, columns may be filled with concrete and will then carry twice the weight given above. It is simply necessary to plug one end of the column, tip the other up and pour in the concrete. Roll the column to pack the cement.

Positions of Columns

As the columns support the mud sills or beams upon which rest the joists, their positions are determined by the positions of the mud sills.

These are generally 12 or 14 feet apart, so there is one steel column every 12 or 14 feet throughout the stable. When the cows face in, the best position for the supporting columns is 9 inches behind the headrail, the measurement being from centre of stall post to centre of column. They should come in the partitions. They do not break the line of the headrail when arranged in this way, neither do they take up valuable space in the stall. They occur at the narrow part of the cow where there is plenty of room.



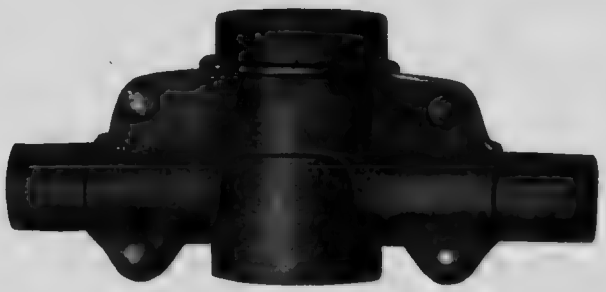


Fig. 405—Column-in-Headrail Clamp

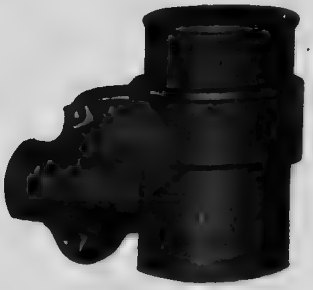


Fig. 414
BT Partition-to-Column
Clamp

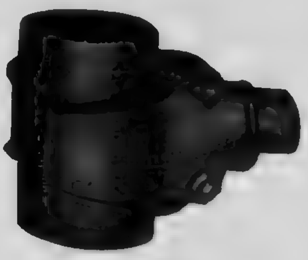


Fig. 406
BT Partition-to-Column
Clamp

Cap and Base for
BT Supporting
Columns

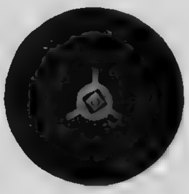


Fig. 423
Base for Supporting
Columns

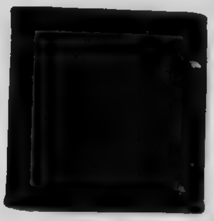


Fig. 422
Cap for Supporting
Columns

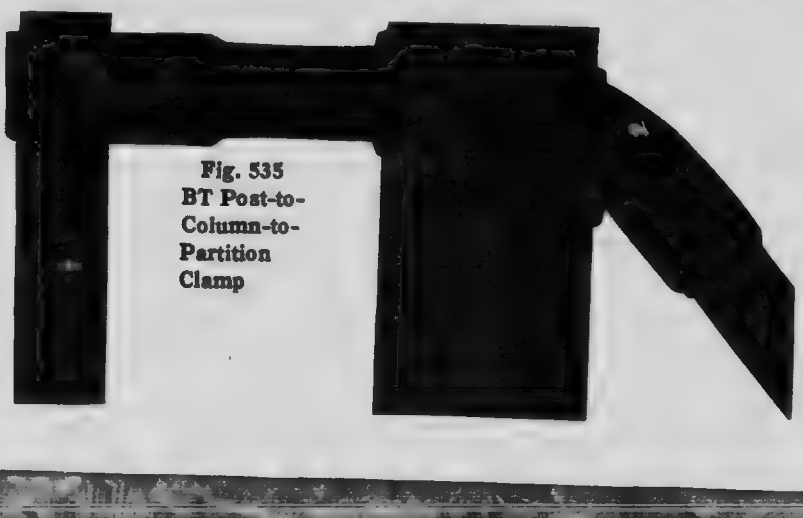


Fig. 535
BT Post-to-
Column-to-
Partition
Clamp

When the cows face out, columns generally stand near the gutter.

Have too many columns rather than too few.

Neat Column Clamps

(Patented)

These are illustrated on page 48. They are very neat and add to the appearance of any stable. There are no ledges or cracks on them to collect dust. Their best feature is that they both clamp and bind tight on the column and the tubing of the headrail or partition and thus make a most rigid construction.

Fig. 535 shows the "Post to Column to Partition" Clamp.

When column must be placed in headrail, Fig. 405 is used.

Fig. 406 secures stall partition to column when the latter occurs at the end of a partition. The partition is cut as shown on page 46. It is used for 3½-inch columns only. For larger columns, Fig. 414 is employed.

These clamps are constructed entirely of malleable iron, galvanized and finished in paint.

Caps and Bases

These are used with BT Steel Supporting Columns and it is very important to have them.

The caps, Fig. 422 are fitted with "aligning" flanges on both sides which keep the beam lined up over the centre of the column. As shown in the illustration, smaller flanges, called "tying flanges," run across the cap. These should be mortised into the beams and thus when two beams meet, will tie them together solidly.

The circular base, Fig. 423 is embedded in the concrete. Its purpose is to distribute the weight evenly on the concrete footings, so there is no danger of cracking.

In estimating the length of supporting columns it is necessary to deduct the thickness of caps and bases. Thickness of caps and bases are as follows:—

6-inch cap or base is ½-inch thick
8-inch cap or base is ⅝ " "
10-inch cap or base is ¾ " "
12-inch cap or base is ⅞ " "

How Columns are Finished

BT Columns are furnished either painted or galvanized and painted. The galvanized columns cost more, but are strongly recommended.

above floor
around posts
WALK
CATTLE STALLS
FEED PASSAGE
FEED PASSAGE

Floors

Foundations for floors and walls have been discussed. We have published a booklet, "Making a Model Stable with BT Stable Equipment," which gives detailed instructions about foundations, making forms, mixing and laying the cement. This book is mailed without charge to everyone who purchases BT Equipment. We will therefore not give much space here to the subject, but will merely attempt to discuss the principles.

Stable floors must be impervious to water, sanitary, easy to clean, comfortable for the cow, durable, inexpensive and should not rot or wear out. The old style wood floors fall down when brought face to face with practically every one of these requirements. We unhesitatingly condemn them. It has been our policy for ten years to warn farmers about them.

City and government authorities have for many years delivered attacks of no small violence upon this most unsanitary form of stable construction.

One great cause of the spread of bovine tuberculosis is the soaking of liquid manure into stable floors. They harbor vermin. They cannot be kept clean. They rot and require constant repairing. Their appearance in the stable, after a few years use is not handsome, to say the least.

Creosote Blocks—Fig. 601

Creosote blocks make a satisfactory flooring if well laid. These should be laid on a cement foundation with a heavy coating of tar, pitch or neat cement (1 of sand, 1 of cement).

Cork brick can also be used and is very satisfactory. It is made by mixing granulated cork and a special grade of tough asphalt; heating, and making into brick form under pressure. The cracks are filled with cement. This brick is somewhat costly, but it is satisfactory flooring if well laid

Concrete is the material recommended, and it is most often used. It fulfils all the conditions enumerated above. The objection is sometimes urged that they are liable to be damp and cold. If foundations are properly drained there will be no difficulty in this way. Well built concrete floors are being used in every province of the Dominion, including the Prairie Provinces and are giving the best of satisfaction. The cost, in

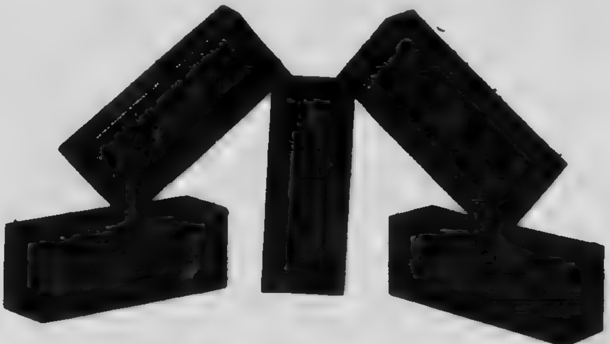


Fig. 601. Creosote Blocks

many parts of the country is less than the cost of wood flooring, and it is easy with cement, to make the manger or gutter any shape.

Floors should have a uniform thickness of not less than 5 inches, of which 1 inch is a finished coat of cement mortar.

Feed alleys, when along the side of the barn, are laid with a fall of about an inch towards the manger. When in the centre of the barn, they are crowned an inch, sloping both ways to mangers. They are finished with steel trowel.

The cattle stand should be ¾-inch lower at the gutter than it is at the curb, thus providing for a fall of ¾-inch in its total length.

For dairy cattle a depression should be made in the cattle stand as shown on page 50. This holds the bedding and makes sure that the cows will not lie on the bare cement. Cattle stands vary in length from 4 feet 6 inches to 5 feet, according to the breed of animal to be tied up. They are given a rough finish with a broom or wooden float.

Driveways or cattle walks have a fall to the gutter of about 1 inch. They must be given a rough finish to give a firm footing to the cows.

To get best results from concrete, it should not be laid in extremes of temperature. However, if laid in cold weather, it may be protected from the frost with straw, laid on just before it begins to set. It should be left on 36 hours. If laid in hot weather, a layer of wet straw prevents too rapid hardening. However, it should not be put on until the surface has begun to set.

Mangers

The type of manger to build partly depends upon the method of feeding and the size of your barn. There are three types in common use: the Raise-and-Lower manger, the High Cement Manager, and the High Level Feed Passage manger. These are illustrated on pages 56-57, where dimensions are given and are more fully illustrated and described on pages 130-140 of this book.

Unless your barn is extremely narrow, either the Raise-and-Lower Manger or the High Cement Manger is the best to use. They are suitable for any kind of feed. The Raise-and-Lower Manger is very easy to build, for it simply requires a shallow trough to be made, the manger itself coming ready-made from the factory.

The front of the High Cement Manger is usually perpendicular, but for convenience it can be made to slope in. Both types of mangers are constructed to prevent feed being thrown out by the animal. If any should fall out, it would be beyond her sight. She will not reach for her feed, causing her hind feet to slip and kicking her bedding into the gutter.

The High Level Feed Passage type is inexpensive. Mangers and divisions are low. Occasionally animals give trouble by throwing the feed out of the mangers on to the feed passage, but in such cases, it is easy to brush the feed back into the manger again. This manger is 2 feet wide and 7 inches deep in the lowest part. The bottom of the manger should be one inch above the cattle stand.

If used for watering, mangers should have a fall of 1 inch in 40 feet and a manger trap shown on page 149 should be used. The better plan, however, is to use the water bowls (see pages 177-189) for they keep the water before the cows all the time.

Mangers should be constructed with the aid of a properly shaped templet and should be given a smooth, steel-trowel finish. It is important to give the manger as smooth and as hard a finish as possible.

Curbs between the cattle stand and the manger should be 8 inches high to prevent feed being worked back on to the cattle stand. They should be level and without gaps. Gaps in the curb are difficult to build and cause waste of feed.

Gutters

A properly built gutter is essential to sanitation in the dairy barn. We recommend square gutters, 18 inches wide, 7 inches deep on the cattle stand side and 4 inches on the side of the walk. There may be a half inch fall from cattle stand side to the walk side which allows the liquids to drain off. Sides should be vertical to break the spatter and make the gutter easy to clean with an ordinary shovel. There is little danger of a cow slipping when stepping over such a gutter, and it is so big that it will hold all the manure and keep the cow clean.

The cement should be finished with a steel trowel. A smooth, hard finish is easier to brush clean.

Sometimes sloping gutters are built, which slope from the cattle walks to the cattle stand and have a drop of 7 inches on the cattle stand side. These, we believe, are not satisfactory. Solids dropping in them dam back the liquid manure, causing it to spread out over the cattle walk. They are hard to clean and there is no tool that will fit them. They also give trouble by causing the animals to slip.

Gutters should have a fall of 1 inch in 40 feet and be drained at one end with a gutter trap like that shown on page 229. These traps should always be used for carrying off the water when the stable is being washed out. The liquid manure may be drained off through the gutter trap, or, if desired, can be soaked up by some absorbent and removed with the other manure either directly to the field or to a good cement manure pit.

Walls

Provided that it is put on the proper foundations, no better material in the world than lumber can be found for stable walls.

Owing to severe winter climates in many parts of our country, it is necessary to build walls with dead air spaces. Many stables have been constructed with expensive, solid walls of concrete or stone and they would have cost less and been more satisfactory if they had been built of wood. Heat and moisture in a stable are certain to cause condensation on a solid wall. A good wall can also be made with hollow cement blocks or hollow tile blocks and give a more fireproof construction than wood. Wood is cheaper and more quickly built.

Sometimes the sills of the walls are anchored to footings so that the wood wall commences scarcely 12 inches above the ground. Sometimes the concrete wall is brought up as high as the window sills and from that point frame construction is used. This makes a very desirable construction, as the walls are easily flushed off for cleaning.

For a simple, solid wall of concrete, forms are made of matched sheathing with the smooth side in. These are supported by 2 x 4 studs set 18 inches on centre.

A wood wall is built outside of 1-inch tongued and grooved lumber, or shiplap (dressed one side so that it may be painted) laid over ½-inch rough lumber with a thickness of building paper between them. Studding is placed every 24 inches and inside studding is one thickness of building paper and 1-inch tongued and grooved stock, dressed smoothly and whitewashed.

If shiplap is used for siding, it should be laid horizontally. Tongued and grooved stock is better to be nailed on vertically, as by this plan the danger of water eating into the cracks and rotting the lumber is lessened.

Galvanized steel is being used very largely for siding. It is very durable and fireproof.

Cost of Cement Work

The cost of the material and the amount required for stable floors when made of cement is not difficult to calculate.

The correct mixture to use depends on the type of gravel obtainable. If pit run gravel is used, the mixture should be 1 to 6—that is to say, one of cement to six of gravel; but in this case the gravel must contain four parts of clean, coarse stones to two of sand.

If clean coarse gravel—free of sand—or broken stone can be obtained make the mixture 1, 2, 4; that is, one of cement, two of sand and four of gravel.

Cement is taken as being worth $2.50 per barrel, sand and gravel at $1.50 per cubic yard. These costs vary with every locality.

Floors are usually 5 inches in thickness but in estimating it is usual to allow another inch to provide for mangers and curbs.

First, find the number of cubic feet in the floor, by multiplying length by breadth (taking measurements inside the walls) by thickness of floor. In a barn 36 x 60 inside for 32 cows, this would be 1080 cubic feet or 40 cubic yards.

The rule for finding amounts of cement, sand and gravel is:
Multiply by .045 for number of barrels of cement
Multiply by .015 for number of cu. yds. of sand
Multiply by .03 for number of cu. yds. of gravel.

1080 x .045 equals 48.6 bbls. cement $2.50 per bbl equals...	$121.50
1080 x .015 equals 16.2 yds. sand 1.50 per cu. yard, equals....	24.30
1080 x .3 equals 32.4 yds. gravel 1.50 pr cu. yard, equals....	48.60
	$194.40

Cost of the material would be $6.07 per cow, supposing costs of material were as given above.

Cost of the material in walls can be worked out in a similar way. In the case of walls, the mixture is made 1.3.6. Multiply by .033 for barrels of cement, .015 for yards of sand and .03 for yards of gravel.

An easy and approximate rule for figuring the amount of cement required on a job is this:—One and one-third barrels of cement for a cubic yard of concrete floor and one barrel of cement for a cubic yard of concrete wall.

Measurements for Stalls and Box Stalls

Cow Stalls should be 3 feet 3 ins. to 4 feet in width. No stall, for even the smallest cow, should be narrower than 3 feet 3 inches. Stalls for large cows should be 3 feet 10 ins. or 4 feet wide. It is very important not to make the stalls too narrow.

Cow stalls, in depth, from curb to gutter, measure 4 feet 6 inches to 5 feet, depending largely on the breed of cattle. A good average is 4 feet 8 inches.

10 feet x 10 feet or 10 feet x 12 feet makes a good box stall for a bull. Cow pens will do 9 feet x 9 feet.

Hog pens are built with 10-foot or 12-foot fronts and 2-foot gate. They are usually 12 feet deep. This is sufficient for 8 or 9 hogs. Horse box stalls should be 12 feet x 12 feet and not less than 10 feet x 12 feet. Tie-up stalls for horses are 5 feet to 6 feet wide x 9 feet long.

Horse Stalls

Some farmers stable their horses in the same barn with the cows. This should be avoided where possible. When horses are stabled with cattle it is preferable to place them at the North end of the stable, leaving the sunny South part for the cattle. This position is usually more convenient for attending to both horses and cattle.

There should always be a partition between the horses and cows. The cost of boarding this up is not great. Odors from the horse stable should not be allowed in the dairy barn, and it is not desirable to disturb the cows by any of the confusion of hitching and unhitching horses.

Calf Pens

When calf pens are required, if they cannot be put in a separate calf barn, it is well to have them in the horse barn where their bawling will not worry the mothers. Of course, if they cannot be placed there, have them at either end of the row of cow stalls. The same ideas should be followed in placing the bull pen. Have the pen near the door to make it unnecessary to take the bull along the passages near the cows.

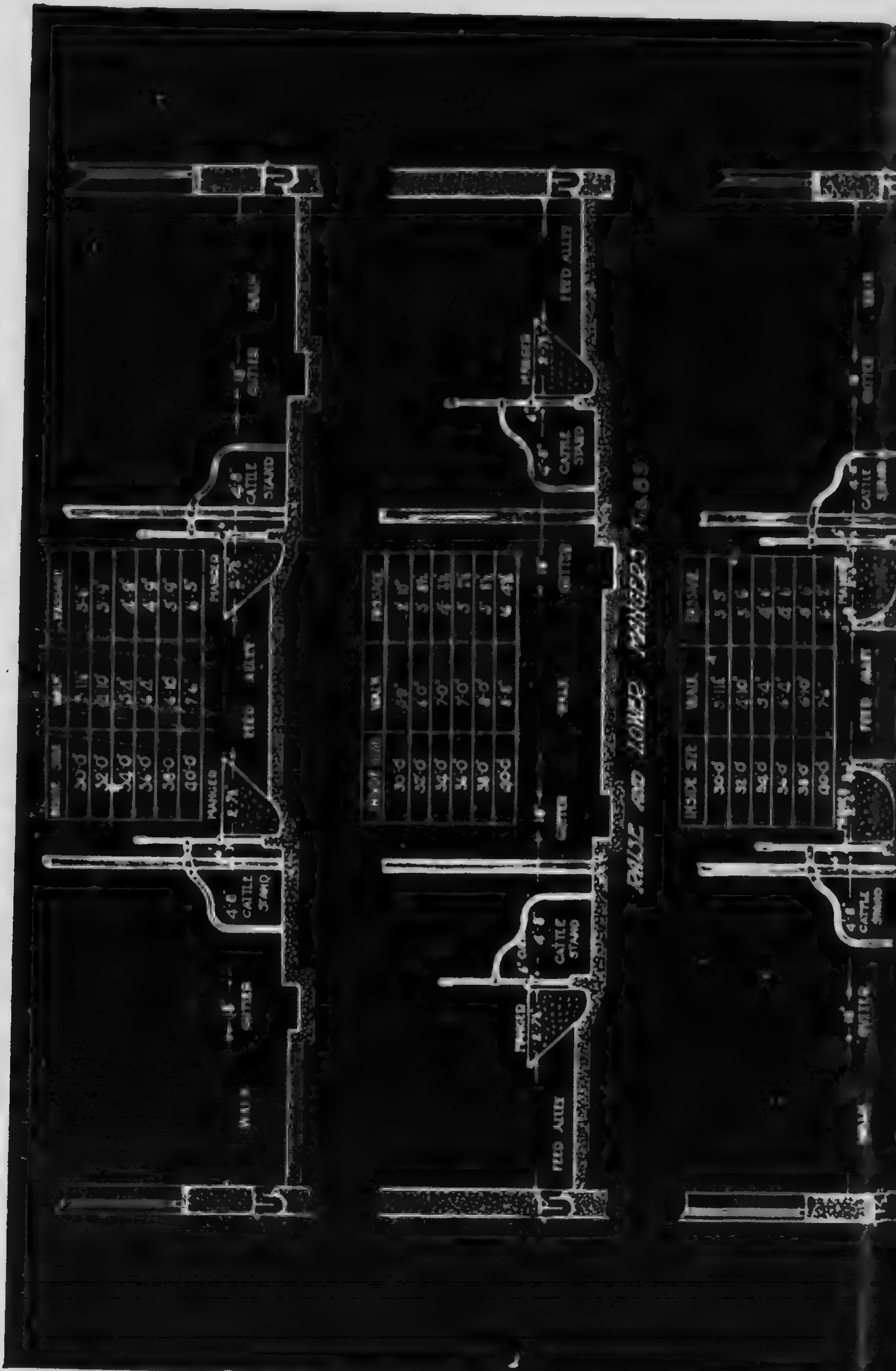
Silos and Feed Room

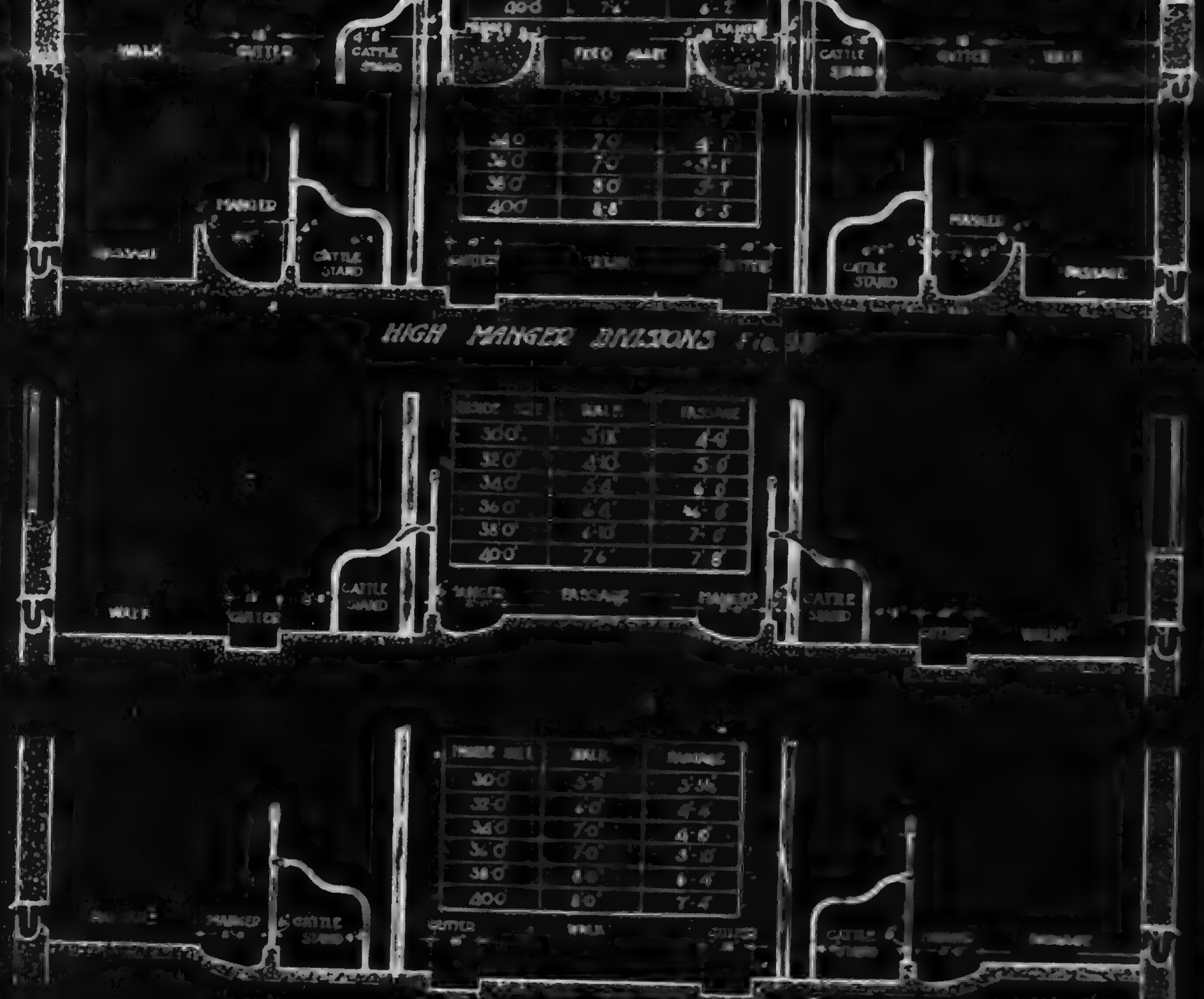
Silos are usually placed near ends of a rectangular barn, to hide as little light as possible. In a T-shaped barn, silos are invariably in the angles between the stroke and the top of the T.

Silos should not be built too close to barn yards. It is not well to have the feed so close to the manure pile, nor to be forced to haul corn for cutting into ensilage, through the yard.

There should be a feed mixing room near the silo. It is convenient for taking care of the ensilage as it is thrown down. This room should be large enough to allow different kinds of feed to be brought together in it and mixed. It should be so placed that it would be handy to the root cellar, the supply of feed and the cows. Many keep the cutting box, grinder and root pulper in the feed room.

If there is a drive-way, a small root cellar or combination root cellar and feed room may be built under it.


RAISE AND LOWER MANGERS No. 69
INSIDE SIZE
WALK
PASSAGE
MANGER
FEED ALLEY
4'-0" CATTLE STAND
CATTLE STAND
WALK
CATTLE



40'0"	7'6"	6'2"

[illegible]	3'5"	5'6½"
[illegible]	6'0"	[illegible]
34'0"	7'0"	4'1"
36'0"	7'0"	3'1"
38'0"	8'0"	5'1"
40'0"	8'8"	6'5"

HIGH MANGER DIVISIONS Fig. [illegible]

BARN SIZE	WALK	PASSAGE
30'0"	3'11"	4'4"
32'0"	4'10"	5'0"
34'0"	5'4"	6'0"
36'0"	6'4"	6'6"
38'0"	6'10"	7'0"
40'0"	7'6"	7'8"

BARN SIZE	WALK	PASSAGE
30'0"	3'9"	3'5½"
32'0"	6'0"	4'4"
34'0"	7'0"	4'6"
36'0"	7'0"	3'10"
38'0"	8'0"	6'4"
40'0"	8'0"	7'4"

HIGH LEVEL FEED PASSAGE Fig. 41?

STANDARD WIDTHS OF WALKS AND PASSAGES

lling Headrail.

Lining up Partitions.

Attaching partitions, [illegible] attaching special clamp at col

Inserting temporary blocks to hold cement clevice in position.

[illegible]taching su[illegible] top chi[illegible]

Forming bottom of mangers with template.

Attaching stanchions.

Natco Silo, barn of Gordon Gooderham, Clarkson, Ont.

Stave Silo, barn of Walker Sons, Limited, Walkerville, Ont.

Stave Silo, barn of [illegible]

Cement Silo at Pri[illegible] Fa[illegible] Guelph, Ont.

[illegible] Cement Block Silo, barn of [illegible] Ont.

Silos

There is no more paying investment on the farm than a silo. If you can't put it up when you build, plan for it and have it built the next year. A silo takes care of the product of ten acres or more of land, displaces a large amount of forage and a corresponding amount of storage space for hay or green feed in the barn.

Silos should be located where they will be handy for filling and feeding. They are put where they will screen as little light as possible from the dairy stable. A Southern exposure is better than the North, to avoid danger of ensilage freezing. Sometimes they are put in the barn to save roofing, painting and anchoring, but there is trouble with the odors from the silo permeating the stable.

Concrete, brick, vitrified tile and wood are used for silos. They are invariably round. The amount of building material required to construct a silo of given capacity is less for a round silo than for a structure of any other shape. A round silo fills more evenly. All silos should be smooth on the inside.

The size depends on number of cows and the length of time you expect to feed them. The diameter should not be over half the height, and not more than 20 feet at most. If a silo is made too wide, the ensilage is apt to mould over the surface before you can get it fed. There is also difficulty with ensilage hardening around the walls. It is better to have a medium sized silo where you can take off enough every day to prevent these troubles. Two medium sized silos are better than one very large one.

Table of Capacities

We give below a list of regular sizes of silos, the capacities and number of stock that they will feed:

Dimensions	Tons Capacity	No. of Cows it will keep for 6 months, 40 lbs. per day.	Dimensions	Tons Capacity	No. of Cows it will keep for 6 months, 40 lbs. per day.
8 x 20	19	4	14 x 22	62	17
8 x 24	22	6	14 x 24	67	19
10 x 20	28	7	14 x 26	72	21
10 x 22	31	8	14 x 28	78	22
10 x 24	34	9	14 x 30	83	23
10 x 26	37	10	14 x 34	93	26
10 x 30	43	12	16 x 22	81	23
12 x 20	40	11	16 x 24	86	25
12 x 22	45	12	16 x 26	95	26
12 x 24	50	13	16 x 28	102	29
12 x 26	54	14	16 x 30	108	31
12 x 28	57	15	16 x 34	110	31
12 x 30	60	16	16 x 38	122	33
12 x 34	68	19			

Ceilings

When there is a loft overhead, stables should be ceiled perfectly tight, so no dust can get through. Close-fitting, tongued and grooved stock should be used, protected by a layer of building paper just between lumber and joists. Sometimes metal siding has been used for the ceiling. Any plain, smooth surface that will not catch dust, harbor lice or collect cobwebs, is satisfactory. Some people simply nail up a few wide boards for the purpose, but these shrink, leaving big gaps through which dust falls.

Both ceilings and walls should be painted white or whitewashed. The intensity of the light in the stable can be doubled in this way. The height of ceiling varies with the width of the barn and the climate of the locality. It should never be too high, or it will be difficult to keep up sufficient air current for effective ventilation without making the barn too cold. 8 feet is about the average height. Care must always be taken, of course, to have the requisite amount of air space for the number of animals in the stable.

Temperature

A temperature of 60 degrees is considered ideal for a dairy stable, but it has not been found necessary to keep the temperature of the dairy barn up to 60 degrees to secure the most economic milk flow. The temperature must always depend upon the humidity of the atmosphere. In well ventilated barns the temperature may go as low as 40 degrees and the cows will not feel any harmful effects. From 40 to 55 degrees is a safe range in well ventilated barns.

To Measure the Capacity of a Loft

Allow 500 cubic feet per ton of hay.

Size of Drive

When unloading is done in the barn and it is necessary to drive into the barn, 14-foot drives are recommended with two 7 feet 3 inch roller doors 12 feet high. The drive floor occupies the full space between bents. They may be 12, 14 or 16 feet as desired Double drives are sometimes used in very long barns. In a dairy barn, the drives should be as few and as small as possible, for they obstruct light.

Gable Doors for Hay Track

Gable doors for a hay track should not be less than 12 feet deep to give plenty of head room when slings are used. There are two doors, each 5 feet wide. A 10 x 8 feet door will do for a horse fork. The doors should be hung on a sliding door track. See Fig. 584, pages 338-339.

Our Free Barn Plan Service

Without any charge, we offer to make a suggestive floor plan for anyone who is building or remodeling a barn, showing best arrangement of stalls, box stalls, passages, silos, etc. We shall also be glad to give any information about the building of a barn that is needed, and to help you by every means in our power.

As we have impressed before, all that one can hope to get from a book of this character is a knowledge of modern ideas concerning barn construction and a grasp of the fundamental principles.

You have many individual problems to solve, for your needs are different from those of everyone else. We can assist you if you will write us fully, and send us a rough sketch showing the dimensions of the barn you propose to build, indicating the number of stock and your own ideas about the arrangement.

We will make a working plan from this, with the proper measurements marked, and suggest any improvements in your layout that may occur to us. Our knowledge of the technical details of barn building will save you money in purchasing your materials and enable you to make good use of every inch of floor space in your stable.

If the floor plan suits you, you can have us make you a complete set of plans to go with it, showing end and side elevations, framing of bents, side framing with complete bill of materials, both cement and lumber. We will furnish you with as many copies of these as you desire. These plans and specifications can be used to get favorable bids from contractors and carpenters. They will save you money. When we make a complete set of special plans we charge a nominal sum, as shown on the following basis:

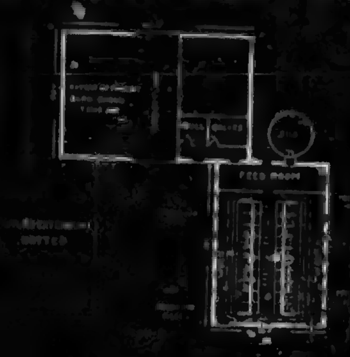
	Plans Cost	Lumber Bill and Specifications
Barns for 1 to 20 stalls	10.00	3.00
Barns for 21 to 40 stalls	15.00	4.00
Barns for 41 to 80 stalls	20.00	5.00
Barns for 81 to 100 stalls	25.00	7.00
Barns for 101 stalls or more	35.00	12.50

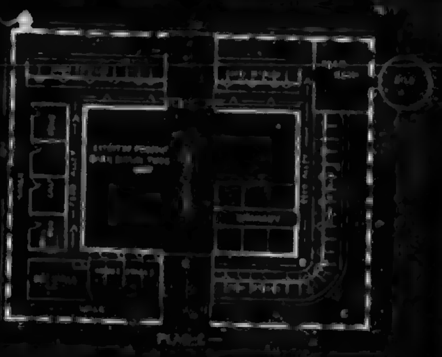
The set of plans includes ground floor plan, second floor plan, side and end elevations, sections for the framing and a section giving floor measurements. The lumber bill and specifications include complete particulars of lumber required, an estimate of the concrete material needed and a full set of specifications covering the work to be done by builders and contractors.

Consider Carefully

Think over the matter of your new barn very carefully. Get all the information you possibly can. Plan for sanitation, comfort, convenience and saving in labor. Lay out the ground floor so that you make the utmost use of every square inch, without crowding. Arrange feed rooms and root cellars so that you do not waste time and steps at feeding time. Plan for thorough ventilation and plenty of light. Start with a carefully thought out plan. If your contractor is allowed to go on and build a barn "out of his head" you are almost sure to be disappointed. Barn planning is a science and it pays to get all the expert advice you possibly can.

If you call on us we will give you all possible assistance.





Right and Wrong Methods of Enlarging the Barn

Plans "D" and "E" show the right and the wrong method of enlarging existing barns.

The idea of building a shed to the present barn and continuing this process as necessity requires, until there is a shed all around the barn, is a very poor one.

Study the feeding facilities as shown in the two plans and notice the numerous steps one would need to take to feed around the passage marked "A" in plan "E" and compare with the short, direct method of feeding two rows at once as shown in plan "D." Useless steps mean loss of time with a resulting loss of profit.

The one storey barn as illustrated on plan "D" lends itself to extension at any time either by continuing his wing or building another similar wing on the opposite side of the existing barn.

Another poor feature in plan "E" is shown at Fig. "B." The circular Head Rail or one that is circular at the corners, is one to be condemned. The crowding which arises at the manger and the waste room at "C," which cannot be used to advantage are the poor features of this idea. Extra labor and expense incurred in forming circular curbs, mangers, and gutters and result in no material advantage.

One cannot easily form a yard which will be easy of access to all four sides of "E." Notice that nicely sheltered and compact yard that can be formed by building as in plan "D."

Plan "D" in proportion to the number of stock houses will be much more economical to build than plan "E," and this is the greatest consideration for those favoring plan "D." The main timbers in plan "D" will not require to be so long as in plan "E."

Again, supposing that there are windows in the present barn, how is one to obtain direct light in this barn if he builds as in plan "E"? The installation of borrowed light would help in a very small degree.

The system of ventilation would suffer most. There would be parts in plan "E" in which the air could not be changed when necessary, and the foul air shafts would have to extend past the highest point in the roof of the existing barn. A great decrease in the velocity of the air current would result if these were carried up inside the main building. This marked decrease would be caused by a sharp turn in the foul air shaft at the point where it leaves the shed and enters the main building. To carry the foul air shafts straight up through the shed roof would be too expensive a proposition.

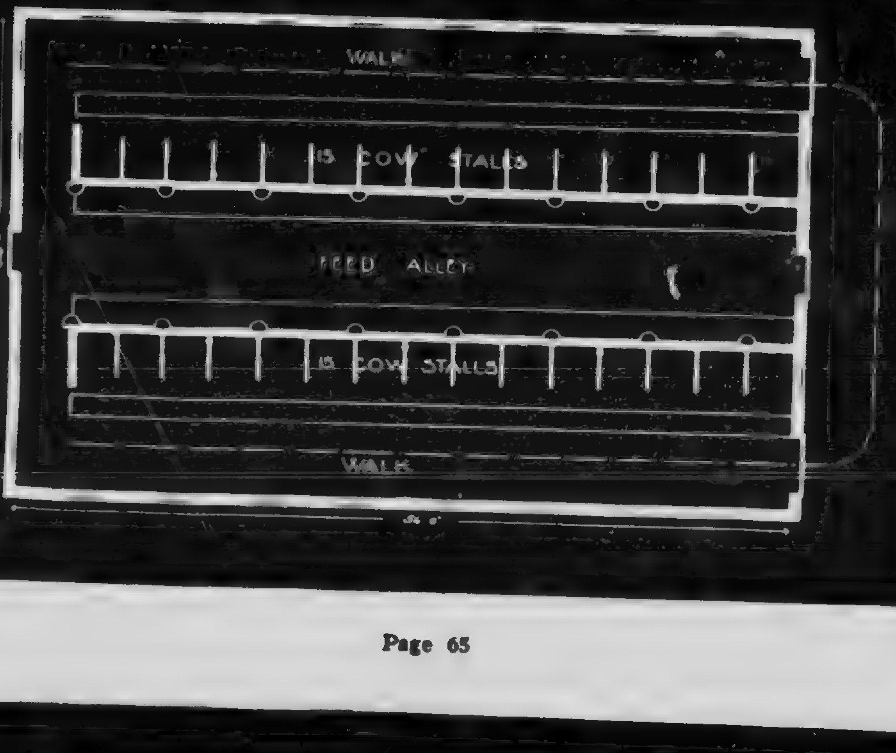
No. 9

This illustrates a very economical plan for a dairy barn. The type of construction is inexpensive and the measurements are cut down as closely as possible, still leaving fair room for walks and feed passages.

This one-storey type of construction make a sanitary dairy barn. It is easily and quickly constructed and can be added to without difficulty at any time. When a feed barn is already up, this type of barn can be used to good advantage. The cows may be arranged to face in, as in No. 10, if desired.

Price of complete plans, bill of lumber and specifications, $7.00.

We have also lumber bill and specifications for one 14-foot bent, which can be used if it is desired to add another bent, or shorten the barn.

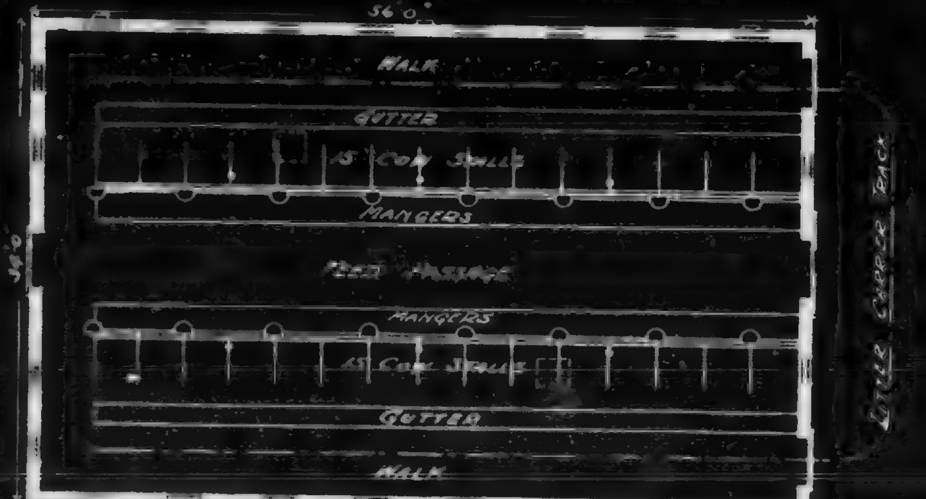


No. 10

No. 10 is a two-storey barn and has storage in loft for 50 tons of loose hay. The loft is filled from hay door in the gable. The same features of handiness and inexpensive framing apply in this case as in No. 9. The plan also lends itself to addition at any time, in fact, was mainly planned on that basis, and we have made out a lumber bill and specifications for one bent so that the plan may be increased or decreased if desired.

The price of complete plans, lumber bill, and specifications is $10.00.

We can supply complete plans, etc., at same price, showing cows facing out.



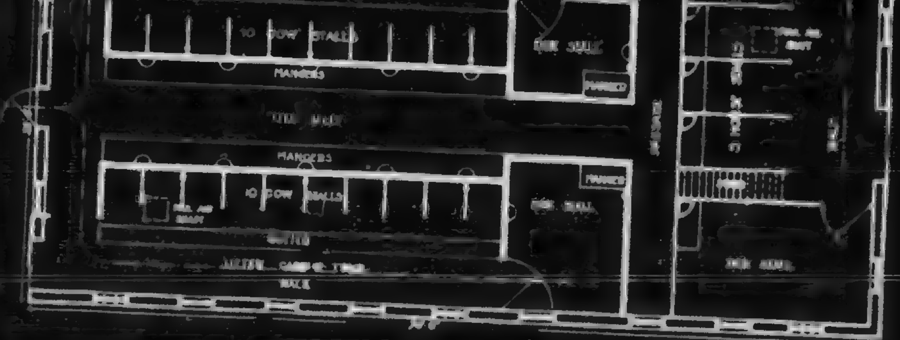
No. 8

No. 8 shows dairy barn for 20 cows, 2 box stalls, and 4 horses. This barn is 70 feet long by 32 feet wide.

The cows are separated from rest of stock by solid wall. One of the box stalls can be used for bull pen, the other as a hospital stall. The concrete foundation extends 12 inches above ground and construction above is of light plank framing.

The loft is filled by means of hay door in gable, and has capacity for 80 tons loose hay.

Price of complete plans, lumber bill and specifications is $10.50.



No. 11

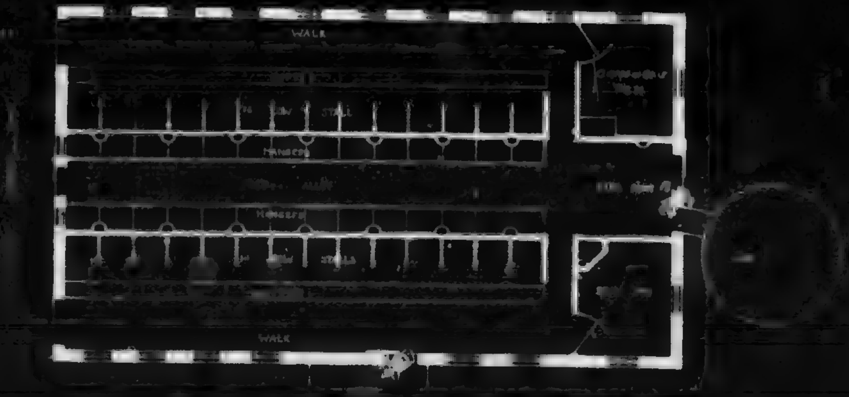
No. 11 shows splendid layout for a dairy barn for 28 cows.

The barn is 60 feet long by 36 feet wide and has a storage loft for 90 tons of loose hay. Concrete wall 9 feet above ground. Plank frame construction above.

The feed room is at the end of barn and silo adjoins feed room. Root cellar occupies the space below the driveway.

There is accommodation for 28 cows. Bull Pen. Cow or Calf Pen.

Price of complete plans, lumber bill and specifications, $10.00.



No. 4

No. 4 shows an ideal layout for a stock and dairy barn. In this plan the milch cows are entirely separate from the young stock, dry cows and horses.

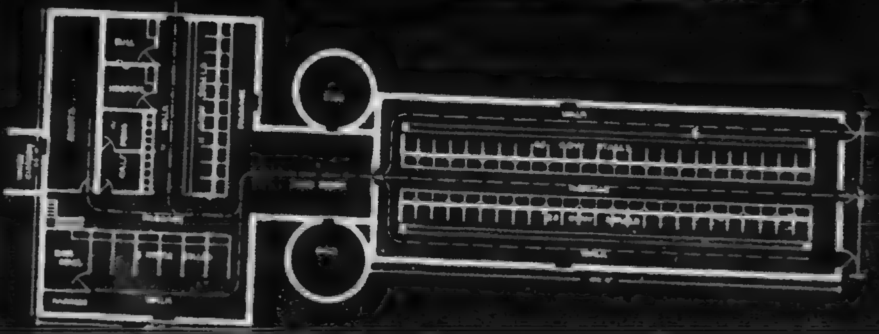
The dairy barn is one storey, all roughage being kept in the loft of the stock barn.

The stock barn is 66 feet long by 46 feet wide, and the dairy barn 100 feet long by 36 feet wide.

The concrete foundation extends to the underside of the windows, the construction above being of plank frame. There is room in the loft for 120 tons of loose hay. There is a driveway to upper floors, the space below the driveway being used for a water cistern, or may be used for a root cellar.

There is accommodation for 50 cows in the dairy barn. In the stock barn there is accommodation for 7 horses, 11 young cattle, 10 calves, and two box stalls. The feed room could not be placed in a more handy position, the feed being easily delivered to both barns.

Price for complete plans, lumber bill and specifications, $14.00.



No. 18

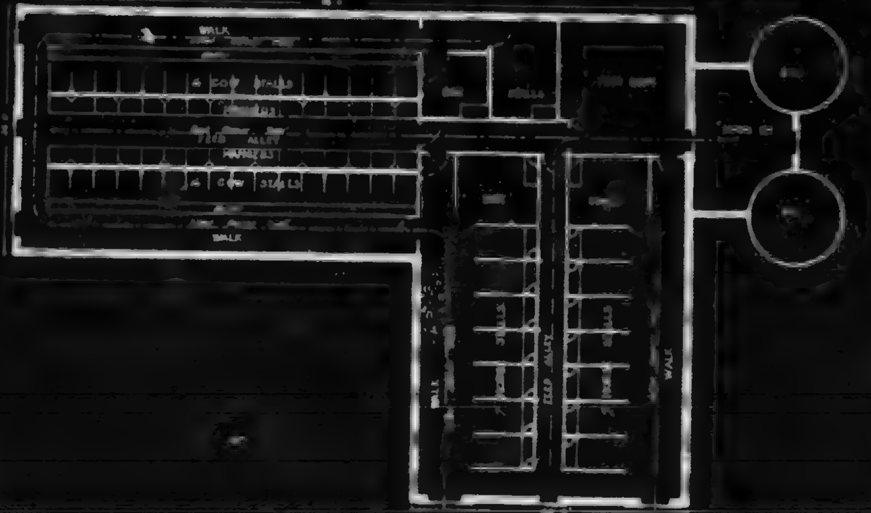
No. 18 is an L-shaped barn and is intended for a large farm carrying mixed stock.

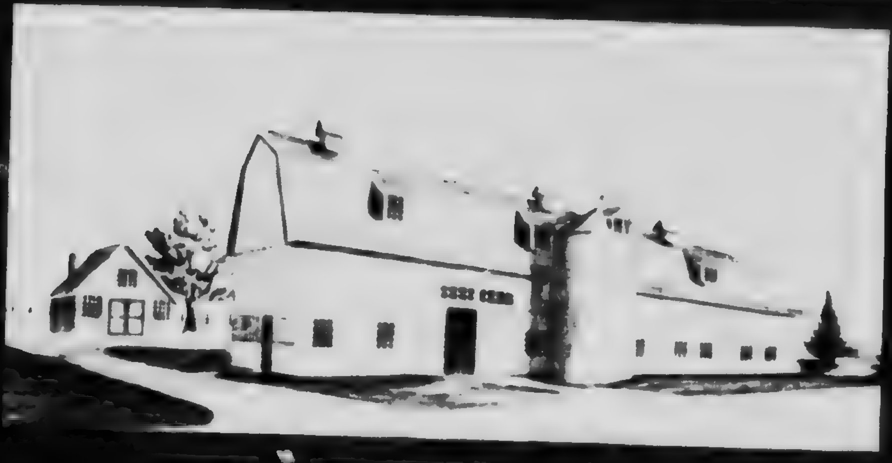
The main part of barn is 70 feet long by 40 feet wide, the lesser part being 58 feet long by 36 feet wide. The concrete foundation wall extends 9 feet above the ground, the upper construction being plank frame.

There is room in lofts above for 220 tons loose hay. There is accommodation in stable for 32 cows, one bull, one maternity pen, also 16 horses.

The 19 feet x 19 feet feed room is connected with silos and is ideally placed in this layout, being very handy for both barns. The Feed Carrier Track runs from feed room to both feed passages. There is a Manure Carrier Track behind each row of horses and cows.

Price of complete plans, lumber bills and specifications, is $10.50

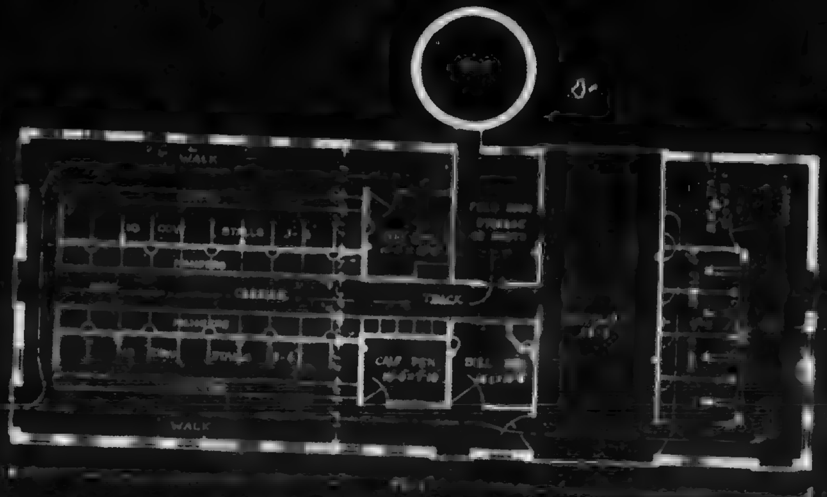


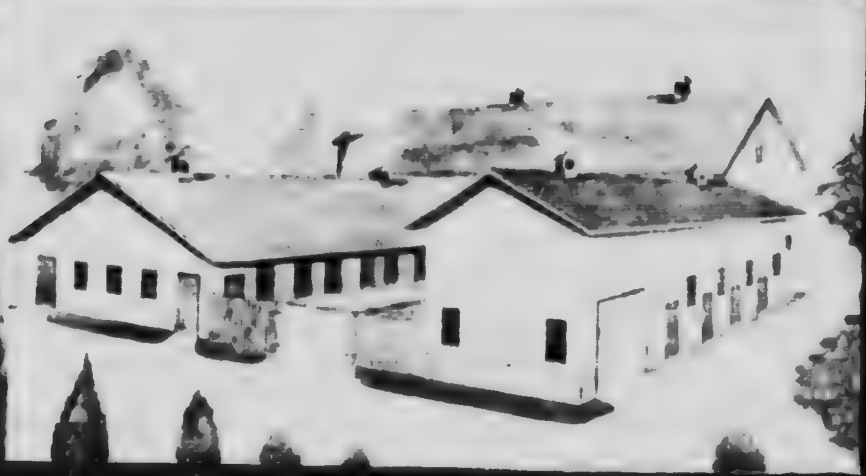


No. 2

Plan No. 2 is the "Economy" General Purpose Barn with drive-way on ground floor. It is 92 feet long and 36 feet wide and has accommodation for 20 cows, cow pen, calf pen, bull pen, 4 single horse stalls and one box stall for horses. Horses are fed directly from the drive way. Note the simplicity of the layout and handiness for feeding stock and cleaning barn. If desired the driveway can be used for mixing feed and the feed room filled with grain or roots.

Concrete finish extends to window sill. There is room in the mow for 90 tons of loose hay. Price for complete working plans, specification and lumber bill, $10.





Professor H. H. Dean's Plan for Remodelling

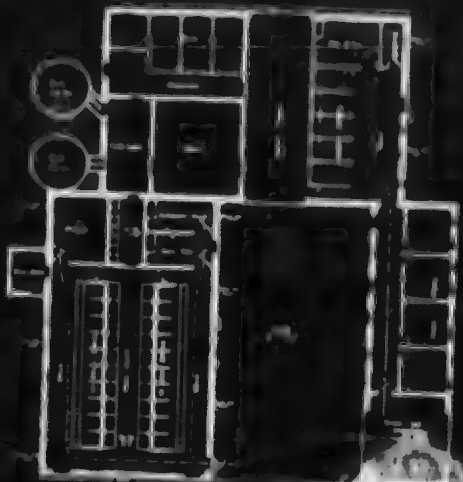
There comes a time in the life of every ambitious farmer when the old barn seems too small, and old fashioned. In some cases he goes to work and widens the old barn, raising it on a cement or stone wall, and putting on a hip-roof, thereby erecting a great building which is a pyramid to his everlasting sorrow. Without question he has more accommodation, but lighting and ventilation are poor, especially in the centre, and the layout is not convenient.

The best method of increasing accommodation, after raising the old barn on a 12-inch or 18-inch wall, replacing the rotting timbers and re-roofing or re-sheeting wherever necessary, is to add a one-storey dairy barn. This forms an L with the barn, making a well protected barnyard, which could be provided with Feed Racks, affording an ideal exercise yard for the cattle. This should be cemented; the cement, though rather expensive, is a good investment, as it is cleaner.

The illustration shows how a Hog Pen could be built on the other side to accommodate the hogs and still give further protection to the yard. The Hog Barn is higher than the dairy barn for it has a mow, into which the straw could be blown at threshing time, and none of it would be scattered and wasted.

Specifications

This is an ideal layout for the average 100-acre farm. There are six single Horse Stalls, Box Stall, and Harness Room in the old barn.



Granary has a capacity of 2,500 bushels ; i[illegible] and Silos, so is handy for mixing feed ; th[illegible] outside are well placed. Capacity of R[illegible] ; it can be enlarged, if greater capacity is n[illegible] front the Feed Room ; the walls should be fr[illegible]tion ; it can be filled from the threshing floor. Silos ar[illegible] easy to fill.

The Dairy Stable has 20 single Cow Stalls, a Bull Pen, a Maternity Pen, and a Calf Pen, which are entirely separate from the main dairy. The Milk Room is convenient to the Cow Stalls and Calf Pens, and is shut off by walls from the odors of the stable. Cows face in, and the feed passage is central. The Rutherford System of ventilating is used, and for purposes of effective ventilation about 660 cubic feet of air space is provided for each animal. There is an average of 7 square feet of glass per head of stock. The ceiling is 9 feet high. The Dairy Barn and the Hog Barn, too, are situated so that they receive splendid light the greatest part of the day.

The Hog Pens, of which there are four, should all be provided with swinging fronts and have cement floors and wood plank for sleeping apartments raised a few inches higher at the back of the pen; or, the sleeping apartment could be raised and supported at any convenient height.

If it is desired to stack straw in the yard and more space is desired for this purpose, the Dairy Barn and Hog Barn could be placed further apart.

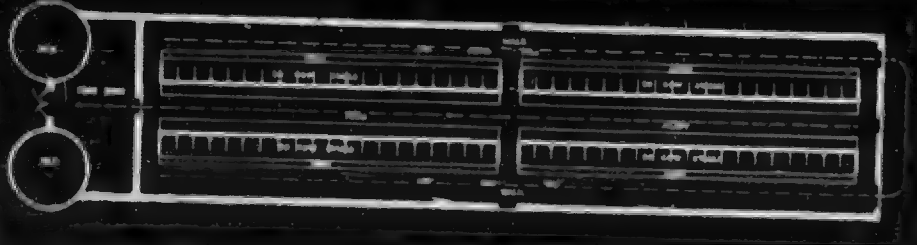
No. 15

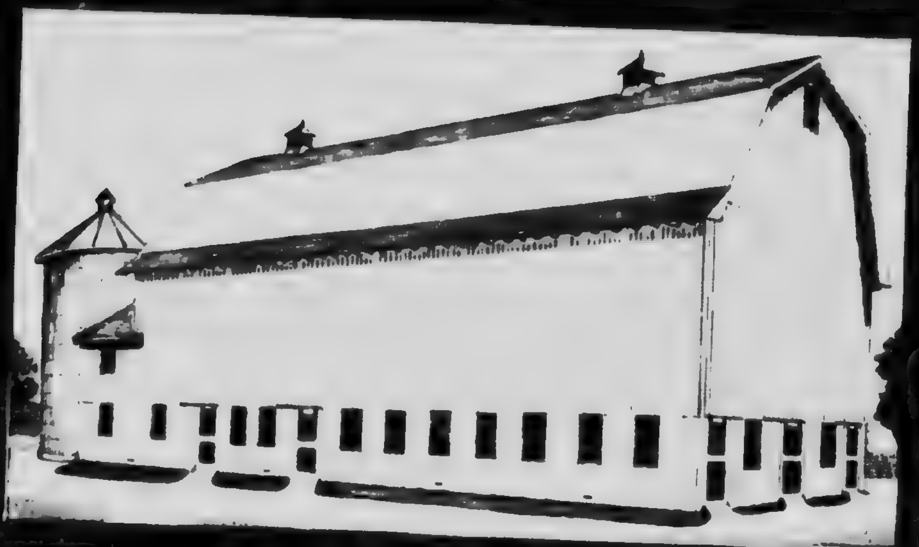
This barn is 154 feet long by 38 feet wide, with feed room 38 feet by 16 feet and two silos; this dairy barn shows accommodation for 80 milch cows. The foundation to the underside of window is of concrete, and plank frame construction is used above. The loft is filled by means of a hay track, and has capacity for 210 tons of hay.

The feed room is one storey high only.

The feed carrier track runs the full length of the barn, making it very handy for feeding. The manure carrier is carried down behind each row and out at the end of the barn. This can either be run to the manure pit or bracketed to the end wall, as per illustration. Manure in this way can be dumped directly into manure spreader or sleigh.

Price of complete plans, lumber bill and specifications, $14.00.



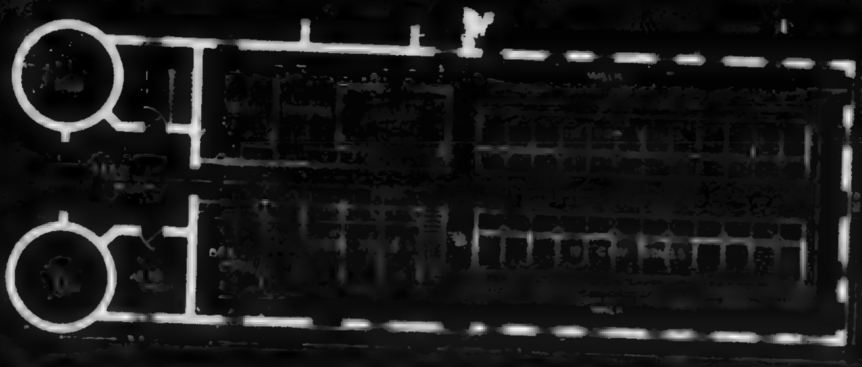


No. 1

No. 1 shows the Wisconsin model dairy barn for an 80-acre farm. This barn was originally designed by W. D. James, of the James Mfg. Co., Fort Atkinson, Wis. It has accommodation for 24 cows, 7 calves, 1 bull, 1 pen for hospital, and 5 horses. This plan has many good features, such as position of feed room, making easy feeding for both cattle and horses; the ease with which this plan may be enlarged, either to accommodate more horses, or more cattle.

Concrete foundation is carried up 9 feet above ground with plank frame construction above. The loft has capacity for 170 tons loose hay.

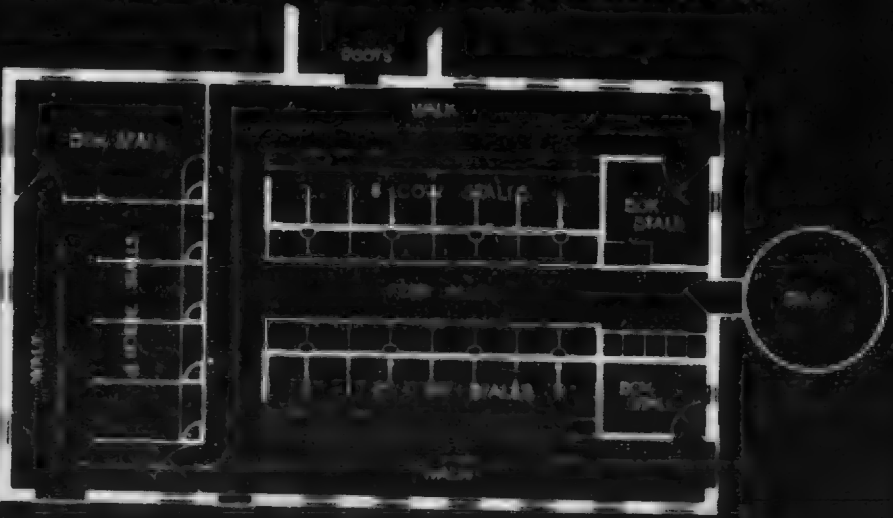
Price of complete plan, bill of lumber and specifications, $10.50.

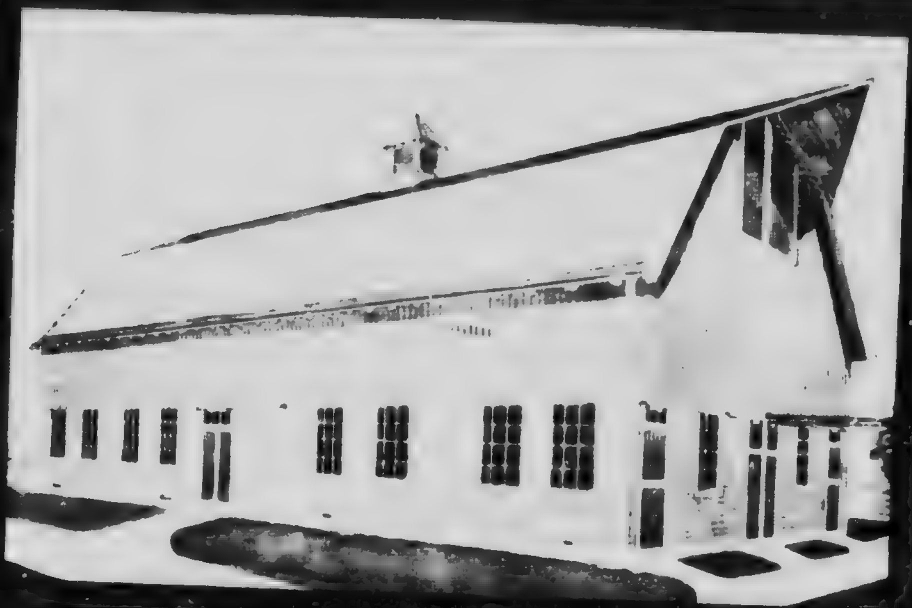


No. 16

No. 16 shows a very good plan for an ordinary sized mixed stock farm. The barn is 60 feet by 36 feet. The concrete foundation extends 9 feet above ground, the construction above being plank frame, with loft capacity of 90 tons loose hay. There is accommodation for 16 cows, bull or hospital stall, calf pen, and 5 horses. There is a driveway up into the barn. The space below the driveway is used as a root cellar. Silo for this barn is very conveniently placed for easy feeding.

Price of complete plans, lumber bill and specifications, $10.50

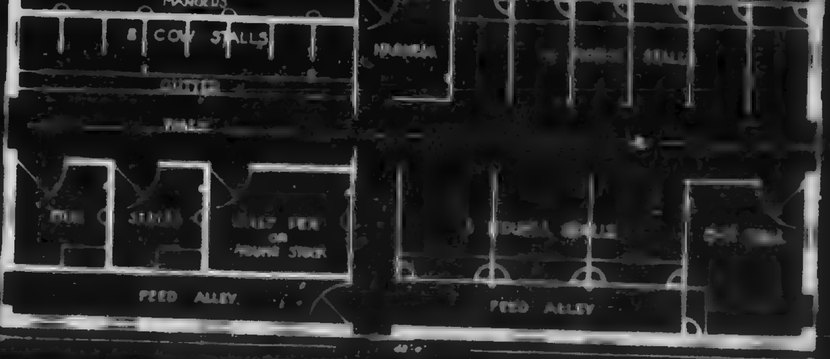




No. 17

This barn is 68 feet x 34 feet. The foundation is of concrete and extends 12 inches above ground level. The posts are 14 feet long, and the construction of plank frame. This plan makes an excellent layout, especially for Western farms, giving accommodation for 13 horses, and harness room, 8 cows, with calf and bull pens. The walls in the stable are composed as per illustration on page 28, and make a very good wall for Western conditions. The barn shows an end lift, and has storage for 75 tons of loose hay.

Price, complete with plan, lumber bill and specifications, $10.50.

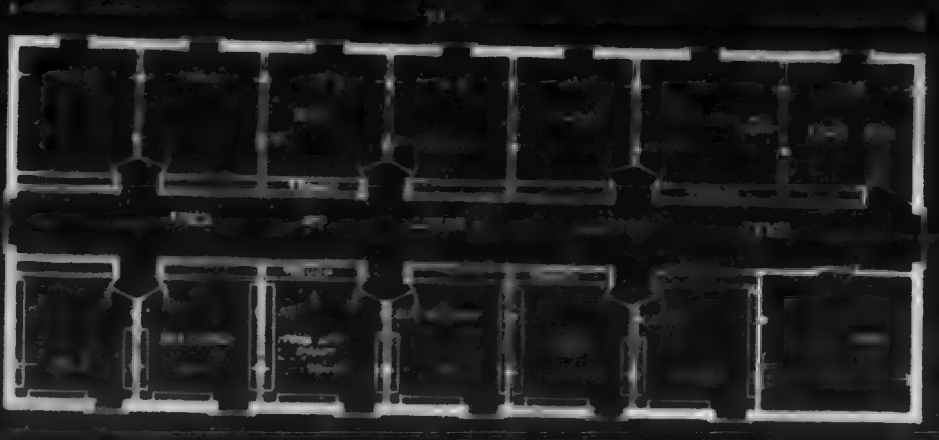


No. 19

No. 19 shows the "Sunshine Hog Barn." The construction of this barn assures an ample supply of direct sunlight for every part of the interior. It is 30 feet wide and 74 feet long and contains 14 pens. It will accommodate 80 to 100 hogs.

The arrangement of the gates make it very handy for handling the hogs and allow the maximum amount of trough for feeding.

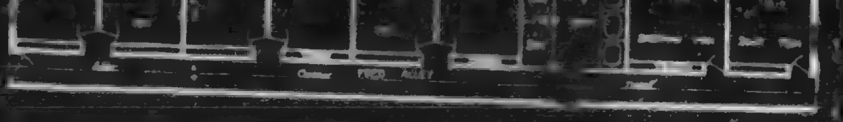
This building can be constructed for a moderate amount. Price of complete plans, specifications and lumber bill, $7.50.



No. 20

No. 20 shows a very economical plan for hog barn, to accommodate from 50 to 70 hogs. The layout of this Barn makes it very easy for feeding and cleaning out litter. It is constructed on the most simple and economical lines, yet is strong and serviceable. Walls are 5 feet high, of concrete or (perferably) hollow tile. Barn is well lighted by row of windows in one side of roof which is built at an angle of from 55 to 60 degrees. Windows should face the south to give the maximum amount of sunlight. Plenty of fresh air can be admitted.

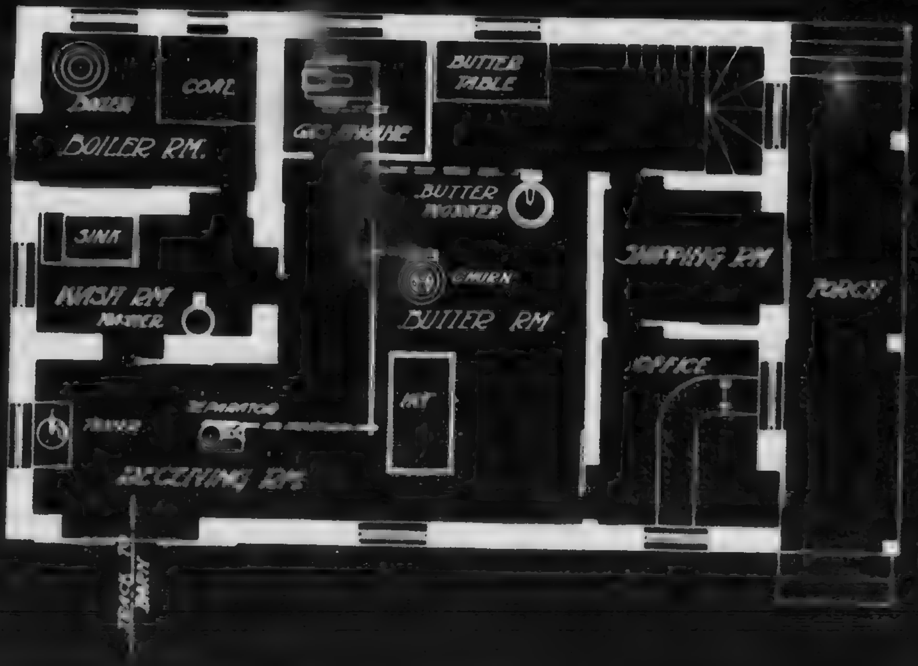
Price of complete working plans, specifications and bill of materials required, $7.50.



No. 12

No. 12 is a dairy in connection with any dairy stable. This building is 32 feet x 22 feet, and shows a good layout for the different utensils used. The milk is brought direct from the stable to the dairy on an overhead track.

Price, with complete plans, lumber bill, and specifications, $3.50.



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Barn of S. Mastine, Richmond, Kingsley County, Quebec.

Burned to the ground without injury to the BT Steel Stalls.

Your New Barn

There are very few decisions that you are called upon to make which are as important as the way you decide to equip your stable.

Numerous factors must be taken into consideration. The health of your stock; the convenience of yourself or those who look after the animals; the production and return from your herd; all these and many other considerations are linked up with the way you equip your new stable.

Steel or Wood?

What choice have you?

You can build your stalls of wood, or put in steel. Nothing is more necessary, at a time when you are building or remodelling, than careful consideration of the advantages and disadvantages of these two types of equipment.

Combined with cement floors, we believe galvanized steel stalls to be the best possible method of tying the cows.

Steel Stalls Increase Production

They increase the profits from the stock whether you are handling dairy cattle or feeders. In the first place, the animals are comfortable. This alone means much. With steel equipment there is plenty of room for the cow to move her head, turn and card herself, get up and lie down in comfort. There is no chain to chafe her neck. If an animal is obliged to stand or lie down with her head in one position all the time, without proper freedom of movement, the effect will be felt immediately in reduced returns. In BT Steel Stalls she can lie down and move her head naturally. Her movements are not cramped in any way. She is not tied to one side of the stall, but in the centre. She can reach any part of her manger for feed. Although tied with absolute security the animals have all necessary freedom of movement. Is it not logical to suppose that stock tied this way, in comfort, will give more milk and do better than if they are kept in uncomfortable quarters, bawling and miserable?

And then, think how much more sanitary Galvanized Steel Stalls are than wood. Steel does not soak up manure. It does not harbor disease germs, for they cannot live on the bright, hard surface of the steel. There are no surfaces or corners that can collect dust. It has been proved again and again that wood stabling harbors disease germs and lice and that it is practically impossible to do away with them. There is no risk of this with steel. Many farmers are not feeding stock, they are feeding lice. The eggs and nits lodge in the wood stalls, particularly as the stalls get older and more decayed, and hatch out on the cows from season to season. They are as big a torment to the stock in Winter as the flies are in Summer. This one trouble is responsible for the poor condition of many animals when they come out of the stable in the spring. In steel stalls the cattle can be kept clean. They can be kept lined up to the gutter so that the droppings do not fall on the cattle stand. Cleanliness and good health go together. Disease germs thrive in dirt. A clean, sanitary stable with clean, comfortable cows is the greatest insurance against them.

BT

Allow Free Circulation of Air and Sunlight

In order to keep healthy, animals must have proper ventilation. Fresh air must be supplied to them frequently and the foul air drawn off. With Steel Stalls there is nothing to impede the free circulation of the fresh air. There are no solid partitions keeping the cow boxed up in a dark, unventilated stall.

In addition to allowing fresh air to penetrate every corner, Steel Stalls permit sunlight to flood the stable. With galvanized steel stalls there are no dark corners. Sunlight is nature's greatest disinfectant and she provides it free. Surely it is most unwise to put in stabling that keeps the cows in dark quarters, without fresh air, without sunlight, tied uncomfortably, subjected to the pest of lice, exposed to disease germs (notably those of Bovine Tuberculosis) when all these disadvantages may be so easily overcome by putting in galvanized steel stalls. The dairy cow is a complicated factory for producing an almost perfect product, milk. Beef cattle are employed in the complex operation of taking in food, water and fresh air, and turning these into the maximum of flesh. Your production and your profits depend upon the efficiency that your stock display in performing these operations. Steel stalls will add much to the production of the stock by increasing their comfort and keeping them healthy.

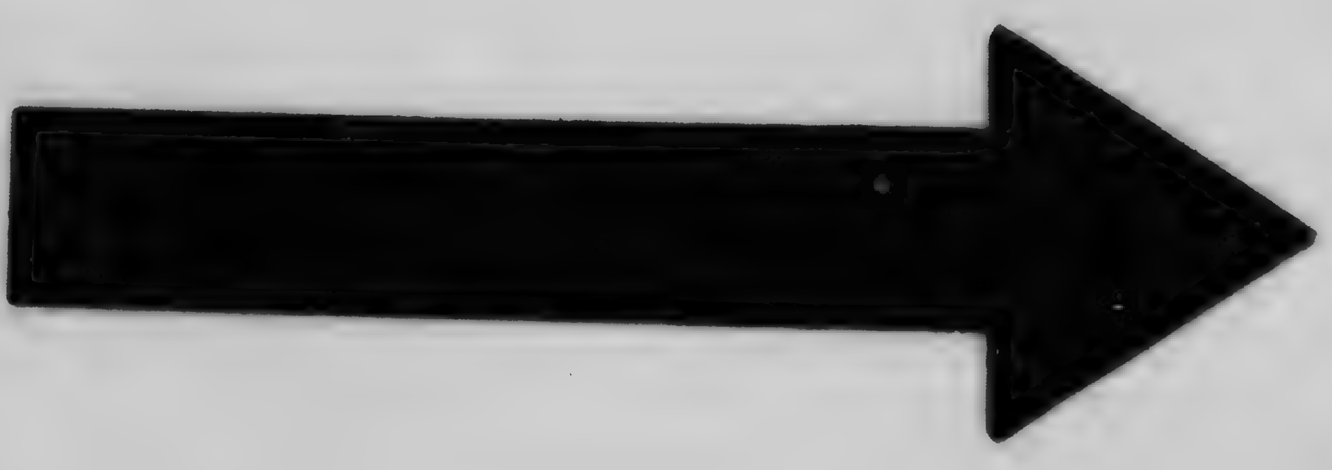
Steel Stalls Save Labor

Steel Stalls are made at the factory and the labor necessary to install them is very much less than that required in making wood stalls. No carpenters are needed to install BT Equipment. No lumber has to be cut and sawed to length. It is not necessary to board carpenters while the work is being done. Whether you do the installing yourself or not, the saving of labor in erecting the equipment is a big item. BT Equipment comes ready to erect. No tools are needed but a hammer and wrench. Everything is in place ready to set in the concrete.

But it is after you have the Equipment in your stable that the labor saving features will make themselves felt. Everything is open. A whole row of stalls can be bedded down in a few minutes because of the open construction of the steel partitions. The stock need not be cleaned down nearly so often as they are kept lined up to the gutter and all droppings fall there instead of on the cattle stand. Their flanks and udders are kept clean. The labor required to let out or tie the stock is greatly reduced. It is child's play to tie and untie the cattle. You can operate the BT Stanchion with one gloved hand. This often saves getting dirty from rubbing against the stock when untying them. Every detail of BT Steel Stalls is designed with the aim of economizing all possible time and labor. No matter how the stock are plunging and pressing against the stanchion the BT stanchion can easily be opened, and the stock are liberated in a moment. In cases of fire this has often proved the salvation of the herd.

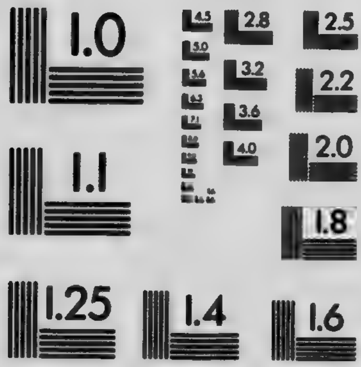
Steel Stalls Eliminate Waste

We have already touched on the effect steel stalls have in lessening disease. The loss of one good cow or steer from Tuberculosis would more than pay for a whole outfit of steel stalls. By allowing no place where germs may lodge and permitting fresh air and sunlight to flood the stable; by



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc

1653 East Main Street
Rochester, New York 14609 USA
(716) 482 - 0300 - Phone
(716) 288 - 5989 - Fax

keeping the cows clean and comfortable, the risk of disease is reduced to the minimum by the use of galvanized steel stalls.

Wood stalls need constant repairs. Galvanized Steel Stalls are everlasting. After years of use they are as good as new. If wood stalls are used with cement floors they never last long The parts of the wood equipment coming in contact with the cement absorb moisture from the wet floor, when the stabling is first put in. This has the effect of swelling the wood, which pushes the concrete away from it. Then the wood dries and shrinks, leaving cracks which fill up with decaying stable manure and liquids; and in a short time the wood rots. In March, 1917, Mr. Norman Kay, of Vandorf, Ont., wrote us as follows:

"In the season of 1912 I built a barn and put in wooden cow stalls using cedar posts 8 inches or more at butt. I have to-day ordered steel stabling from you to replace the above, which have rotted out."

Steel Stalls save feed. BT Mangers are scientifically made so that th stock can reach every scrap of feed. At the same time they cannot tread it under foot, and waste it.

Bedding is also saved by Steel Stalls. Less is required and it keeps clean and fresh far longer.

Very few men wish to build a barn any larger than necessary. Every square foot must be used to the best advantage. Steel Stalls save waste of space. Owing to its superior strength, steel does not need to be nearly so bulky as wood in order to stand a given strain. Where you would use a 4" or 5" square post in a wood stall you only need a 2" steel post. Where a wood supporting post would need to be 8" or 10" square, a steel column need only be 4½" in diameter.

What Others Think

In order to do justice to the subject, we ought to take this whole book. We could publish page after page giving letters from those who have had BT Galvanized Steel Stalls in their barns and would not be without them. As an instance, we give the following expression of opinion from Mr. E. O. Simpson, of Stanley Bridge, P.E.I:—

"I have been using 20 of your BT Steel Stalls and your Hay Carrier for two years. I would not take today twice what I paid for them. I figure the stalls will pay for themselves in three years."

Throughout this book we publish many other similar letters. There does not appear to be the least doubt in the minds of those who have BT Equipment regarding its advantages. We have shown how it adds to the comfort of the stock, saves disease, saves labor and eliminates waste. But this is not all.

Steel is Everlasting

Steel Stalls make an everlasting stable job. They do not rot. As we galvanize BT Steel Stalls, they will not rust. Once you put this steel equipment in your stable you have the satisfaction of knowing that it is there for ever. There are no repairs to be bothered with. The first cost is the only cost. As proof of the everlasting qualities of the steel, we could tell you of a dozen barns that have burned to the ground, with practically no injury to the stalls.

Col. D. M. Robertson, of Williamstown, whose barn at Williamstown was equipped with BT Steel Stalls, Pens, and other equipment, writes us August 27, 1917:

"On the afternoon of August 20th, my barn at Williamstown was struck by lightning and the whole upper structure was totally destroyed. All that was left was the cement walls and your galvanized cow stalls and pens. A few fittings for the water bowls and stanchions will be required as well as one supporting column. My horse stalls in this barn were built of wood and were completely burned. Your steel columns are absolutely intact, save one, which is slightly bent. Immediately after my insurance was adjusted the barn was cleaned out and the cattle tied in the stalls as usual for milking. I enclose you a snapshot taken by Mrs. Robertson one week after the fire, showing the cows in the stalls." (Snapshot is shown on pages 88-89.)

The Boys' Farm and Training School, Snawbridge, P.Q., bought **30 BT** Steel Stalls and Stanchions in **1911**. The barn burned to the ground in April of **1912**. Every vestige of material that would burn was devoured, leaving only the concrete walls, floors and BT Stalls. Mr. Matthews, Principal of the School, wrote:—

"I am very glad I put in your Sanitary Steel Stalls. One dollar (to pay the cost of a few stanchion springs) makes them as good as ever after the fire. Had we put in wood stalls, they would have been a total loss, and in burning they would have destroyed the floor."

The barn was rebuilt and the same Steel Stalls used again. We wrote for photos of the barn in July of **1913**, and received a remarkable communication from him, which we repeat word for word:

"I am having prints made as you desire of the photographs before and after the fire. I might add that the barn has been destroyed by fire again and we are precisely in the same position as we were last year. The contractor, with the permission of the Directors, is going to use the same stanchions again—they have been through fire twice and yet are as good as new, except for these few replacements, as when we got them in first. Will you please supply us with springs, etc., all as ordered last year? I am adding to the pictures one showing the stanchions as they are now after their second fire."

Danger of fire is not only decreased in the stable, but in case the upper structure catches fire, the cows can be released quickly from the stanchions and saved from destruction.

Helps in Producing Clean Milk

Here is a feature which must be dwelt upon. If you are shipping your milk or cream to the city, operate a milk route, or if you are selling butter to a few chosen customers, you will appreciate it fully.

As we all know, milk has a remarkable power of absorption, absorbing odors, dirt, germs or disease. We know how it will absorb the odors of vegetables if placed in a cellar near them. It soaks up germs of deadly disease in a dirty stable by millions, just as quickly as a blotter would soak up ink.

Further, milk, particularly milk that is warm from the cow, has been shown by doctors and feed experts to be one of the most perfect mediums in the world for the development and reproduction of these germs. It is well to know that germs of typhoid fever, diphtheria, and tuberculosis enter the milk in dirty stables and quickly reproduce under the warm and favorable conditions afforded by the fresh milk. City babies are most frequently the victims. The infant mortality in our cities has been greatly reduced in recent years by the improvement in the cleanliness of the city milk supplies.

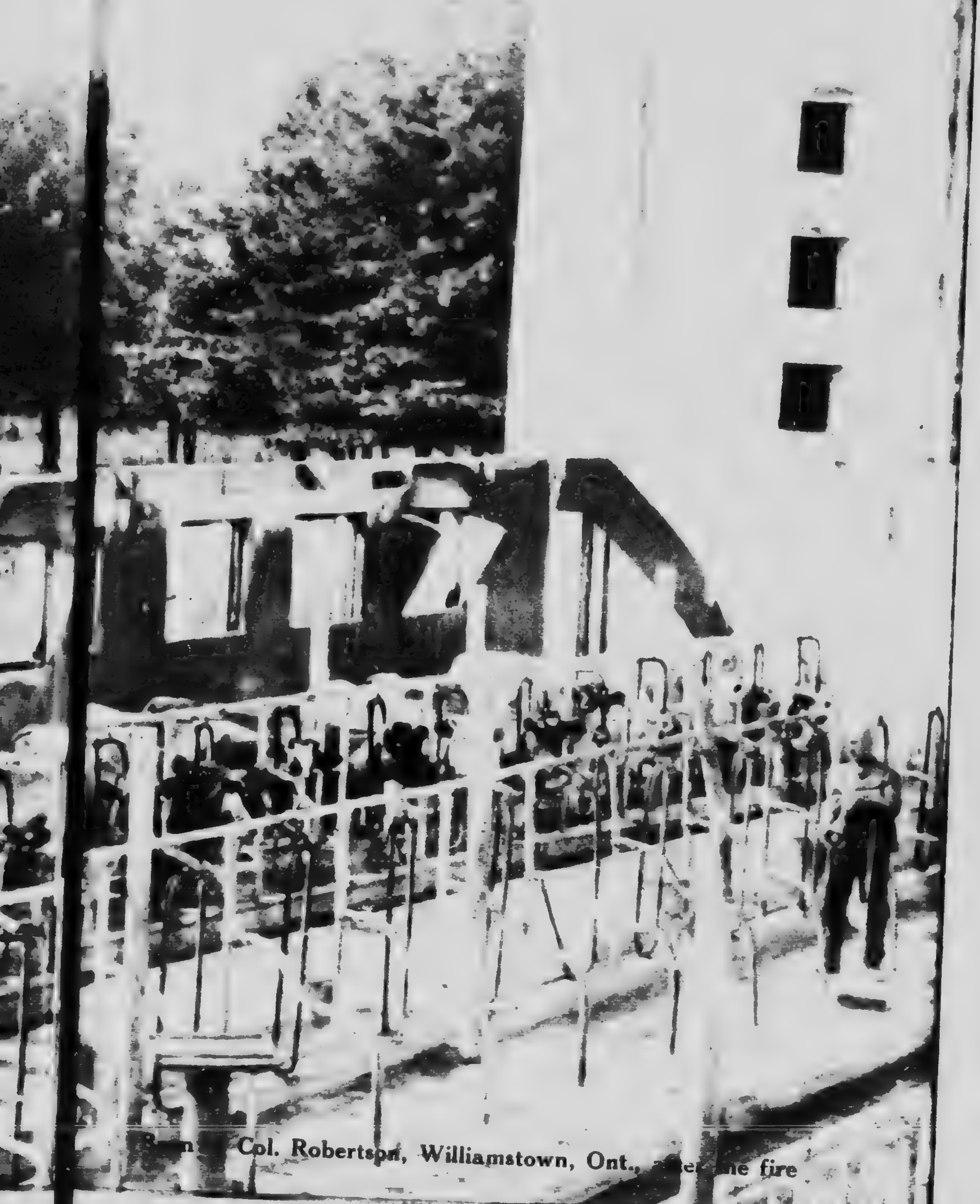
The City Requirements

These facts have caused our cities to pass strict laws controlling the methods of stabling the cows from which milk is shipped, even if they are stabled a hundred miles or more away.

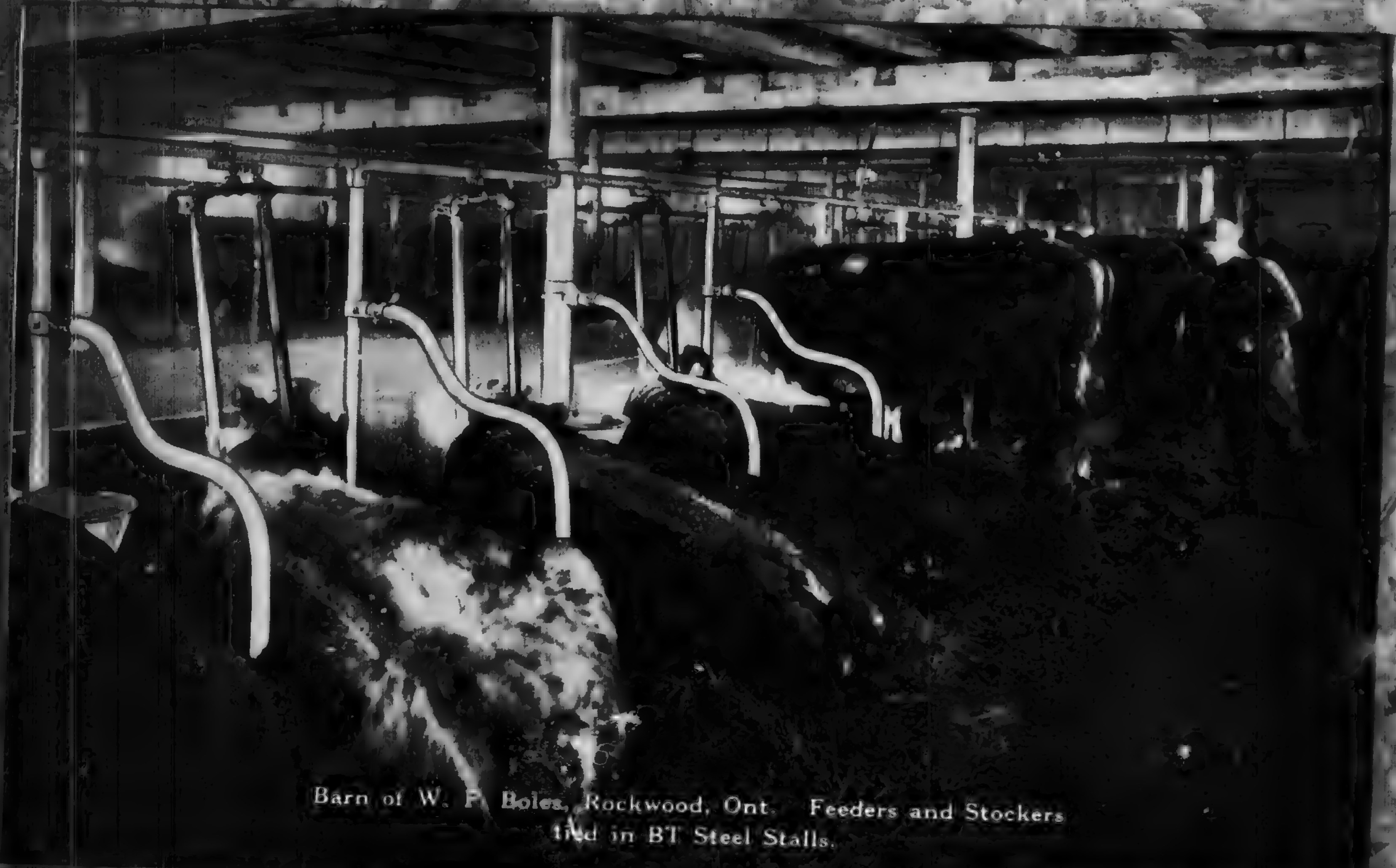
The cities and towns in most of the provinces of Canada have been given

Before fire

PHOTO BY MRS ROBERTSON.



Barn [illegible] Col. Robertson, Williamstown, Ont., after the fire



Barn of W. P. Boles, Rockwood, Ont. Feeders and Stockers tied in BT Steel Stalls.

the power to pass such laws and to send inspectors to see that they are inforced. Most Canadian cities have now done so.

The movement for more sanitary dairy barns is on foot in every direction. The Dominion and Provincial governments are assisting by every means It has made the importance of a sanitary, steel-equipped stable appear in a new light. In reality it is a safeguard to the careful dairy man, for it shuts out his less scrupulous neighbor and enables him to get a price for his product which the careless producer cannot command.

What a Food Inspector Says

The stand taken by City Health Officers and Food Inspectors is fairly well reflected in the letter below from Mr. J. B. Hollingsworth, Chief Food Inspector, Ottawa:—

"All our stables are inspected, and we insist that they be kept clean, cows comfortably housed and kept clean. Two feet of window glass is a minimum for each cow and a system of ventilation that will allow one square foot of inlet and two square feet of outlet for each ten cows. All manure must be removed to the field, or a safe distance from the stable. We recommend cement floors, with swing stanchions and sanitary steel stalls. A tie such as the swing stanchion permits cows to turn their heads and groom themselves. It also prevents them from interfering with their neighbors and helps keep them clean. The dairy cow appreciates such treatment and will show her appreciation by the quantity of milk given."

Steel Stalls Pay in a Practical Way

Mr. Wm. Innis, of Winnipeg, whose barn is equipped with 100 BT Steel Stalls, says:

"Not to mention the improved appearance of my stable and the saving in feed and labor, I might mention that I get 40c. a gallon for my milk at my farm, whereas the current price is from 18c. to 23c. delivered in Winnipeg. More than this, I get the increased price for the milk at the farm, where others have to take or send it into the city."

His milk has an average test of only 5,000 bacteria, whereas the average for common milk delivered in the city is over 1,000,000.

The Erindale Farms, which supply the City of Toronto with milk, wrote us on October 19, 1915:

"We have used the BT Steel Stalls in our dairy barns for some years and they have given perfect satisfaction. They are sanitary, not soaking up any manure and they certainly help us in the production of our Certified Milk. We find that the BT Swinging Steel Stanchions are very comfortable for the cows, so that we get better results from them.

"We are in the dairy business, and we have to show a profit at the end of the year. We believe the steel stalls pay well for they enable us to produce better dairy products at better prices.

"We have tried out other makes of stalls at different times and must say that we decidedly prefer yours. This summer when not all our cows had to be tied up we used the barns with BT Stalls. Our men like to work with BT Equipment."

The system of grading dairy products for city use and paying for them according to quality is becoming universal and is making the steel stalls a paying investment.

Milk which has absorbed the odors and bacteria of an unsanitary stable will not keep well. Cream of similar character will not make best butter. It will not be classed as first grade when it reaches its city destination.

Authorities on the subject have recently stated that it takes a pound less of pure milk than of dirty milk to make a pound of cheese. These same authorities stated that a can of bad, gassy milk such as is produced in a stable where it is exposed to vile odors is enough to spoil a vat of 7 or 8 cheese.

A sanitary stable will pay because it will produce more milk and better milk. It will give the added satisfaction to the owner of knowing that his stable will pass the most stringent inspection of any government or city authority.

The Man who Keeps Beef Cattle

Perhaps you are not running a dairy farm and are more interested in beef stock. If so, do not make the mistake of supposing that steel stalls are only valuable to the dairymen.

The breeder of beef cattle is just as interested in saving labor, keeping his stable sanitary, lessening disease and keeping his stock contented and comfortable. Steel stalls will do all these things for him just as much as though he were running a straight dairy farm. Steel Equipment PAYS. Increased health in the herd such as is sure to follow the installation of sanitary equipment cannot help but make a difference to the weight of your feeders, and apart from that you will get the advantage of the labor saving features of BT Equipment, and will have a permanent, fireproof stable that will remain good for your lifetime.

A Word to the Renter

In view of the sanitary requirements of the present day, renters should be careful about taking a farm on which there is an old-fashioned, unsanitary barn. The stock will have no fair chance to keep in good health. There was a case in British Columbia recently which illustrated the point.

A man rented a farm to start a dairy farm. He had a little capital to start and used most of it, about $3,000.00 in purchasing a herd of dairy cows. The barn, he thought, would do very well as it stood, although, with the yard and whole premises, it was unsanitary in every sense. All went well until the inspector called and condemned the barn as the dirtiest he had ever seen. He tested for tuberculosis and 28 out of the 29 in the herd reacted. The whole herd, excepting the one cow only, was ordered to be shot. The government allowance was not half of what he had paid for the cows and he was ruined. His neighbor, who started in business the same time, but commenced with a BT Barn, had his cows tested soon afterwards, and there was not a reactor in the bunch.

It pays to fix up the stable so that the chance of disease is eliminated. The loss of a couple of valuable animals, if prevented, would go a long way towards the cost of sanitary stabling. Disease, particularly bovine tuberculosis, most frequently commences in dirty surroundings.

The Ladies Should be Interested

To the ladies of the farm, as much as to the men folks, the plea for cleaner more comfortable quarters for the stock will appeal. The ladies have to be about the barn a good deal, particularly when there are dairy cows. It means a lot to have the barn equipped in sanitary way, so that it will always be clean. The men like fine barns and good stabling, but we are sure that the "women folks" are even more particular to have fresh, sunny places for working in.

The BT Swinging Steel Stanchions are humane. This is borne out by a little article which we saw recently in the Farmers' Advocate. It read this way:

"When I read 'Subscriber's' questions in your issue of May 13, re his valuable dairy cows which he had tested for tuberculosis and which did not react, I thought it might be well to relate an experience which I had. Two years ago my whole herd of cows and heifers were treated for tuberculosis, as was his, and not any reacted, although they all had a hacking cough My cows, too, like his, were tied with chains. When the test did not act, the veternery examined their necks and found their throats had become so irritated that they would flinch on touching the irritated place. The chains were short, thus causing the cows to rest their necks on the mangers when they would lie down. I set the chains back further and got in the stanchions as quick as I could It was only a short time until I could notice the cough was getting less pronounced Now my herd is alright and doing well."

It was BT Steel Stalls and Stanchions that this man installed and which overcame his difficulty. BT Steel Equipment helps you to manage the cows much more easily. It is very easy to tie and open the steel stanchions. The steel partitions prevent the cows crowding while you are milking and keep them from moving away. They protect you

You are Paying for Steel Stalls

You may decide to put wood stalls in your stable; if you do, you will be paying for your stable twice.

In the first place you will have to pay a heavy price for the wood fittings Suitable lumber is becoming most difficult to secure and extremely expensive. Carpenters' wages are going up and out of sight. Besides the carpenters have to be boarded while they are doing the work adding not only the expense, but to the work of the women folk on the farm. In most localities a wood stable is more costly than steel in the first place

But you have not finished paying for your wood stable, when you have bought your lumber and paid and boarded your carpenters. You will pay all over again, because of the unnecessary cost of caring for the cows and doing the stable work; the loss of time; the losses through sickness and accident to the cows; the lower milk production; lower prices for your dairy products; the waste of feed; the cost of repairs to the stable and other wastes which the sanitary steel equipment would save. Steel stalls soon pay for themselves. Wood stalls never do. Wood stalls are a bill of expense. Should you wish to sell your farm the barn, if equipped with wood stalls, would be considered old-fashioned and out of date.

Consider Everything

Consider the high price of lumber, the expense of hiring carpenters and boarding them while they dress the material to make a neat job. In contrast to this, remember that the steel stalls come all ready to set up, so that in a few hours the whole equipment is ready for the cement. You have no worry or bother with it. We build it for you, to suit your stable, in our factory. Think, too, as you read this book of the hundred and one conveniences of the steel stalls and remember that these can never be duplicated on any wood stalls, at any price.

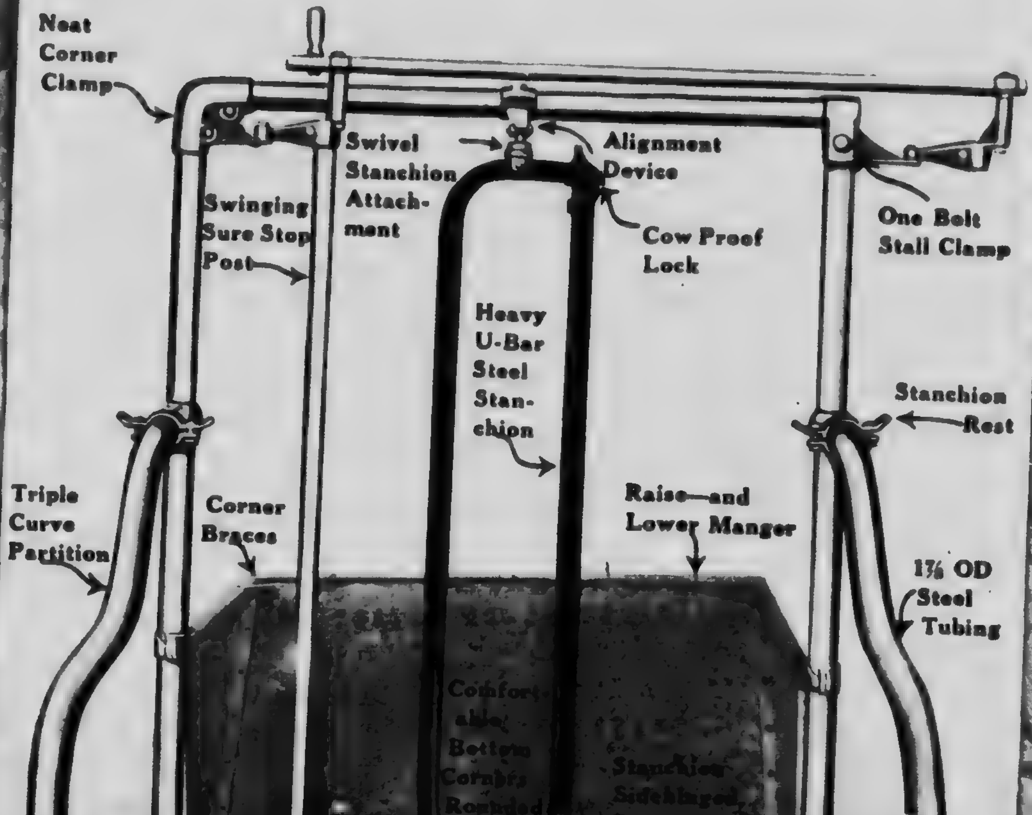
Before we pass on to consider the points of BT Sanitary Stable Equipment let us quote the words of a very successful farmer who installed Steel Stalls:

"Last year we installed modern stall equipment, and during the 3½ months following its installation our cows actually gained an average of six (6) pounds a day."

"Formerly our milk yield was 19 pounds per cow per day. After installing the equipment the yield increased to 25 pounds.

"In addition we have found that the new equipment keeps the cows so much cleaner that one hour a day is saved in cleaning them."

Surely, it paid this man to put in BT Steel Stalls. It will pay you. Get a price on BT Sanitary Stalls. You will be surprised at the low cost


Neat Corner Clamp
Swivel Stanchion Attachment
Alignment Device
Swinging Sure Stop Post
Cow Proof Lock
One Bolt Stall Clamp
Heavy U-Bar Steel Stanchion
Stanchion Rest
Triple Curve Partition
Corner Braces
Raise—and Lower Manger
1⅞ OD Steel Tubing
Comfortable Bottom Corners Rounded
Stanchion Sidehinged Casting Surrounding
Cement Clevice
High Level Concrete Curb

Galvanized

Special Features of BT Stalls

There are essential features in the construction of a steel stall which you should know thoroughly.

There is one right way to finish the equipment, and many wrong ways. There is a certain weight and quality of material which should be used and many lighter weights which will not do at all. There are stanchions which tie the cow, tie her comfortably, tie her so she can't get loose until you release her, and there are stanchions which have none of these advantages. There is equipment which lines up the cow so she can't get dirty, but not all styles will do that. Not all stalls are so durable that they will stand fire. Not all stalls are easy to install. Not all stalls save time and feed and labor. The claims we made in previous pages apply to BT Stalls. Being the pioneers in the stall business, we have long known the essential features of a properly built, sanitary stall. We discovered these features years ago, made them a part of our equipment and had them patented. Other manufacturers cannot supply them.

BT Steel Stalls are Galvanized

You would not think of having wire fencing which was not galvanized. You would not have eave-troughing on your barn or steel roofing or siding which were not galvanized. You know that rust would soon ruin them. You should insist on having steel stalls galvanized, too; for it is even more necessary to protect them from the acids and dampness of the stable. Some stalls are painted with aluminum or black japan, but this is not durable. It is not sufficient protection against rust. Paint scales off. Galvanizing lives a thousand times longer then paint. It never has to be renewed. It is the only finish which will last and look well. Galvanized stalls outlast even the upper structure of the barn.

If you want your stable to look well be sure to get the galvanized stalls.

What the Galvanizing is Worth

Galvanized pipe is ordinarily sold at an extra price of about 30 per cent above ordinary "black" pipe.

You can find out just what the difference is by asking any hardware man, implement dealer or plumber. In this way you can get a good idea of the extra value you get when you buy BT Galvanized Stalls.

How BT Stalls are Galvanized

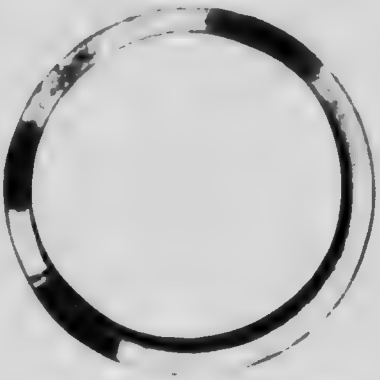
We have our own galvanizing plant. The galvanizing is done by the electric process, often called cold galvanizing. It is the best because it unites the zinc both chemically and electrically with the steel so that it cannot come off.

Some firms claim that galvanizing injures the malleable clamps. They refer entirely to the hot process, which does injure clamps. They are heated to a red heat by this process in the vats of molten galvanizing material and then cooled in such a way as to make them brittle. The electric process, which we use entirely, is called the "cold" process because it doesn't heat up the iron in this way.

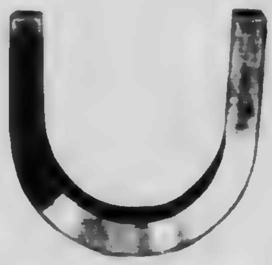
It does not weaken the malleable parts in the slightest degree.

A Double Protection

The steel tubing is thoroughly cleaned by means of a "pickling solution." The grease is first removed, then it is revolved in a foaming acid solution



Cross Section Tubing BT Stalls



Cross Section BT Stanchion

that removes the scale. Every piece is thoroughly cleaned by a thorough scrubbing and is then placed in the galvanizing vat. When it comes from the galvanizing it is thoroughly washed in boiling water.

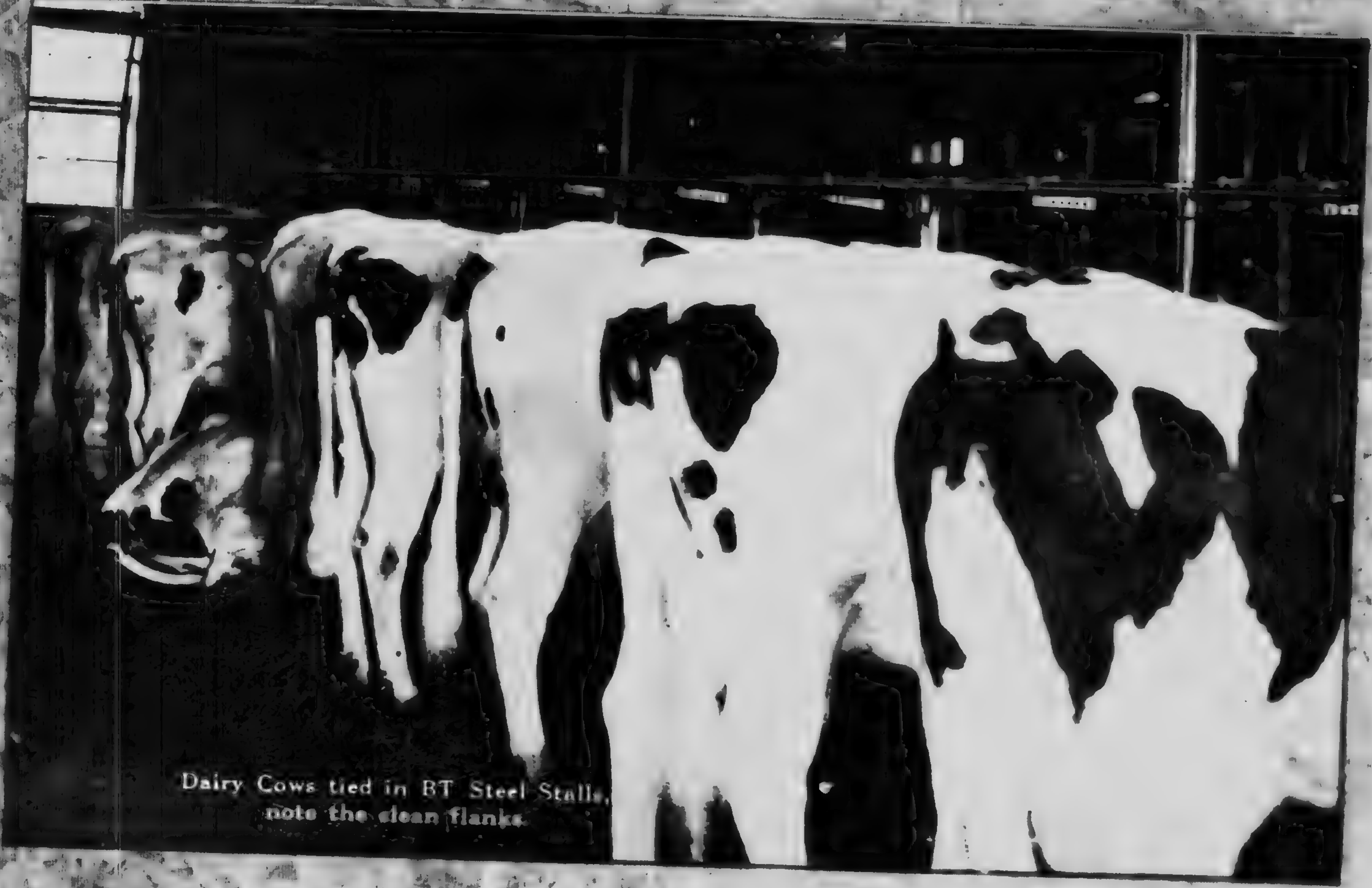
After BT Stalls are galvanized they are finished with a coat of grey ename paint. This paint exercises a strong protective influence and adds to the life and appearance of BT Stalls. The great difficulty with paint is that it cannot be combined with the steel. The rust can get underneath it. But, once you have the smooth layer of zinc clinging closely in every pore, so the steel is protected from rust, the paint in turn protects the zinc and greatly improves the appearance of the stalls. But remember that paint, by itself, brushed over the bare surface of steel, is of little benefit.

Proof positive of the durability of the finish on BT Stalls can be had by asking any man who is using them. We have known customers to buy BT Stalls and Columns and store them outside for weeks until ready to install them in the cement. In fact, at our Winnipeg branch the stalls are all stored outside and they have not rusted even after remaining in the snow and rain a year

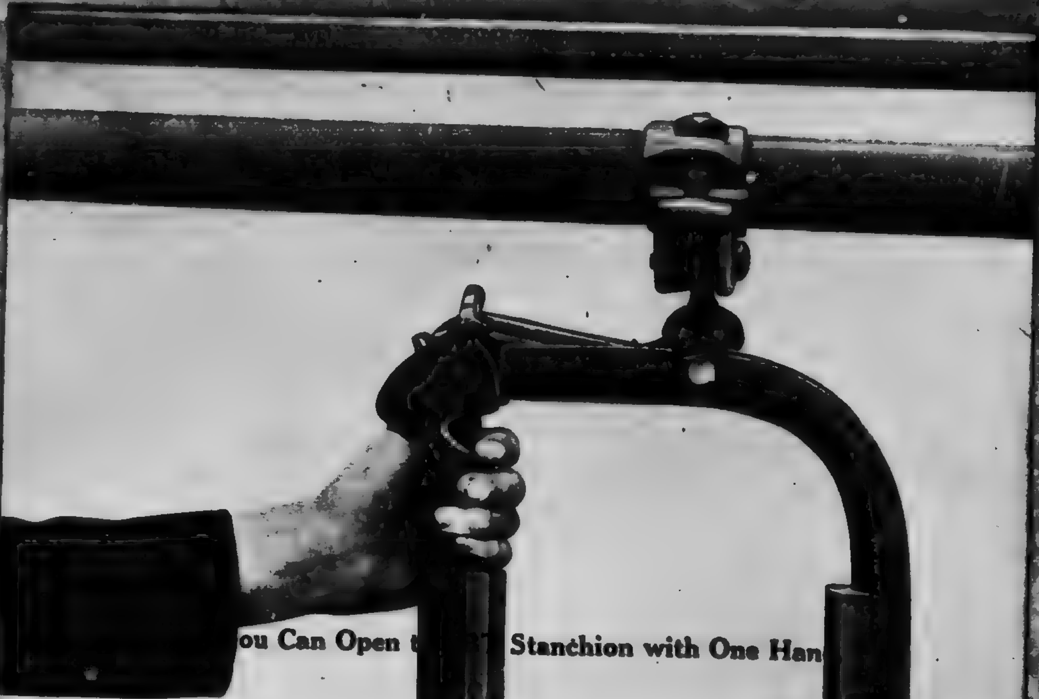
The Materials in BT Steel Stalls

All Steel Stalls are not made of equally strong material. There are many grades of tubing to choose from. The same thing is true of stanchion material, material for clamps and so on. Our long experience in building steel stalls has proved our unbroken policy of using only the best strongest and most durable materials in BT Equipment. In buying steel stalls and comparing prices be sure to find out just what material you are getting. A BT Steel Stall is 50 per cent. heavier in actual weight than the stalls sold by some firms. You cannot expect to get 50 per cent. more material at the same cost. In the specifications for each article complete details regarding the materials used are given. Since, however, the stanchion and the material in the stall itself are so important we mention here the material used.

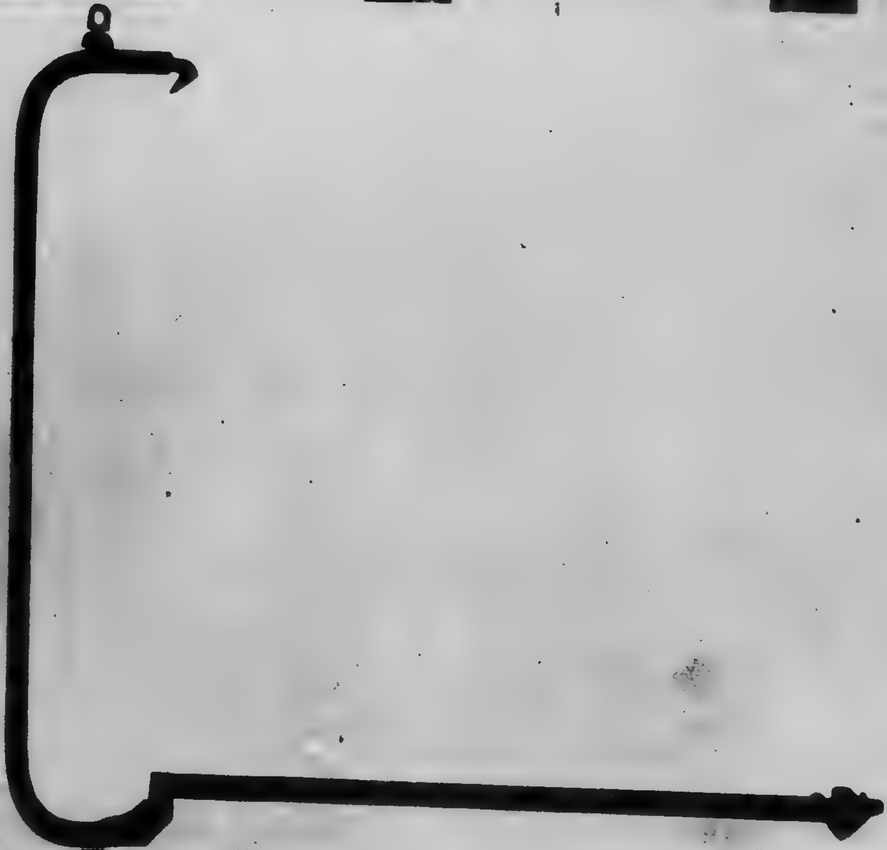
The tubing used in BT Galvanized Steel Stalls is all 1⅞″ outside diameter. Only first grade standard steel pipe is used in BT Stalls. By actual measurement the steel in the tubing is .135 inches thick. The BT 7″ Stanchion is made from 40 to 50 Carbon U-bar steel 1¼″ x 1 5/16″ x 5/32″ weighing 1.53 lbs. to the foot.



Dairy Cows tied in BT Steel Stalls, note the clean flanks.



ou Can Open t BT Stanchion with One Han



Moving Leg of BT Stanchion Can Drop to Floor

The BT Steel Stanchion—Fig. 541

(6½-inch—Shun. 7½-inch—Sack)

(Patented)

The BT stanchion is very strong, and strength to hold the animal is the most important requisite of any cow tie. A stanchion is like a yoke or collar. The cow will frequently exert its whole strength against the sides. The wedge shaped neck of the cow puts a heavy spreading strain on the stanchion, thus putting a great strain on the lock.

The frame of the BT Stanchion extends solidly across the top and solidly across the bottom. The moving leg is hinged to one side, not in the centre of the stanchion. If it were hinged in the centre, all the strain of the chain which attaches the stanchion to the cement would fall on the hinge. The tremendous leverage would break it in time. Stanchions hinged in the centre invariably give way first at the hinge. The hinge and lock are really the strongest parts of the BT Stanchion. The hinge is a heavy, ribbed, malleable casting which entirely surrounds the frame, and is as strong as the frame itself. Similarly, at the top, a malleable iron casting surrounds the lock and frame. It is impossible on this account to spring any part of the BT stanchion out of adjustment.

The stanchion is held to the head rail at the top by a strong, malleable two-bolt clamp. The top bolt tightens the clamp on the head rail. The bottom bolt holds the swivel casting. As the swivel casting is held immovable in the top clamp, there is no danger of the bolt being ground in two by the constant movement of the stanchion.

The moving leg opens right down to the floor. Very often an animal, especially if it gets into the wrong stall, will put one leg through the stanchion and, when driven back, will trail its foot over the moving leg. A BT Stanchion cannot be injured by this treatment. All the cow can do is to knock the moving leg to the floor, and you can quickly turn it up again. No stanchion which is hinged in the centre and chain hung will open to the floor, hence there is continual trouble with it breaking.

Easy to Open

You can open the BT Stanchion, no matter what pressure the cow may be putting on it, and you only need one hand to lift the lock. In fact you can open it even when wearing mittens or gloves. A stanchion that opens easily is a convenience at any time, but it is particularly important in case of fire. It requires all the skill of two hands to open some stanchions—one hand to open the latch and the other to pull back the moving leg. If you are driving back the terrified animals with a club, you must drop your club to untie every cow and pick it up again to force her out of her stall. Precious time is lost. It is most important to have a stanchion that opens easily with one hand.

The latch is protected by the malleable casting referred to before, so that it is out of the way of the horns of an animal whose horns turn back, as the horns of an Ayrshire usually do.

Comfortable for the Cow

The comfort given the cow, by the BT Stanchion, and the perfect ease with which she can rise, are well illustrated on pages 101 and 102.

The BT Steel Stanchion is attached at top by a swivel connection so that it can be turned completely around. This gives the cow the utmost freedom to turn her head. Below, it is held by a short chain which slides along a cement clevice, embedded in a concrete curb. This allows the stanchion to move forward as the animal rises, preventing bruised shoulders. Page 101 brings out this advantage.

The BT Stanchion is held at the top by a rigid connection instead of a chain, so that there is practically no forward or backward movement at at the top of the stanchion. She is prevented in this way from stepping forward to dung on the cattle stand. This is illustrated on page 103. The swivel connection is noiseless. There is a constant rattle and noise from any chain hung stanchion.

Stanchions hung with chains above and below are objectionable, because they give the cow too much liberty to move backward and forward, and too much side movement. They allow her to steal her neighbor's feed. They give the cow liberty to do what she shouldn't be allowed to do, but they deny her the privileges necessary for her comfort. There is no side movement with the BT Stanchion.

The bottom of the BT Stanchion is square, the corners being slightly rounded. There is nothing sharp to hurt the cow. This gives her much more room than the V-shaped end sometimes seen. It does not pinch her neck. It allows the cow to put her head down as low as possible. When the clevice is sunk in flush with the top of an 8-inch curb, the bottom of the stanchion is only 10½ inches from the floor.

The swivel connection above comprises two heavy malleable castings, which are fully four times as strong as chains. The malleable clevice and half-inch pin are equally strong.

The openness of the U-bar steel affords no shelter for vermin

High Level Curb

Owing to the close connection of the BT Stanchion with the curb, this latter can be built up very high without interfering with the comfort of the cow. The inside of the bottom of the stanchion is never more than 2½ inches from the curb, or 10½ inches from the floor, so that the curb can be built 8 inches high. This saves a lot of feed by preventing the cow nosing it back from the manger. It is very neat in appearance, less difficult and less expensive to build than the cut-out curb.

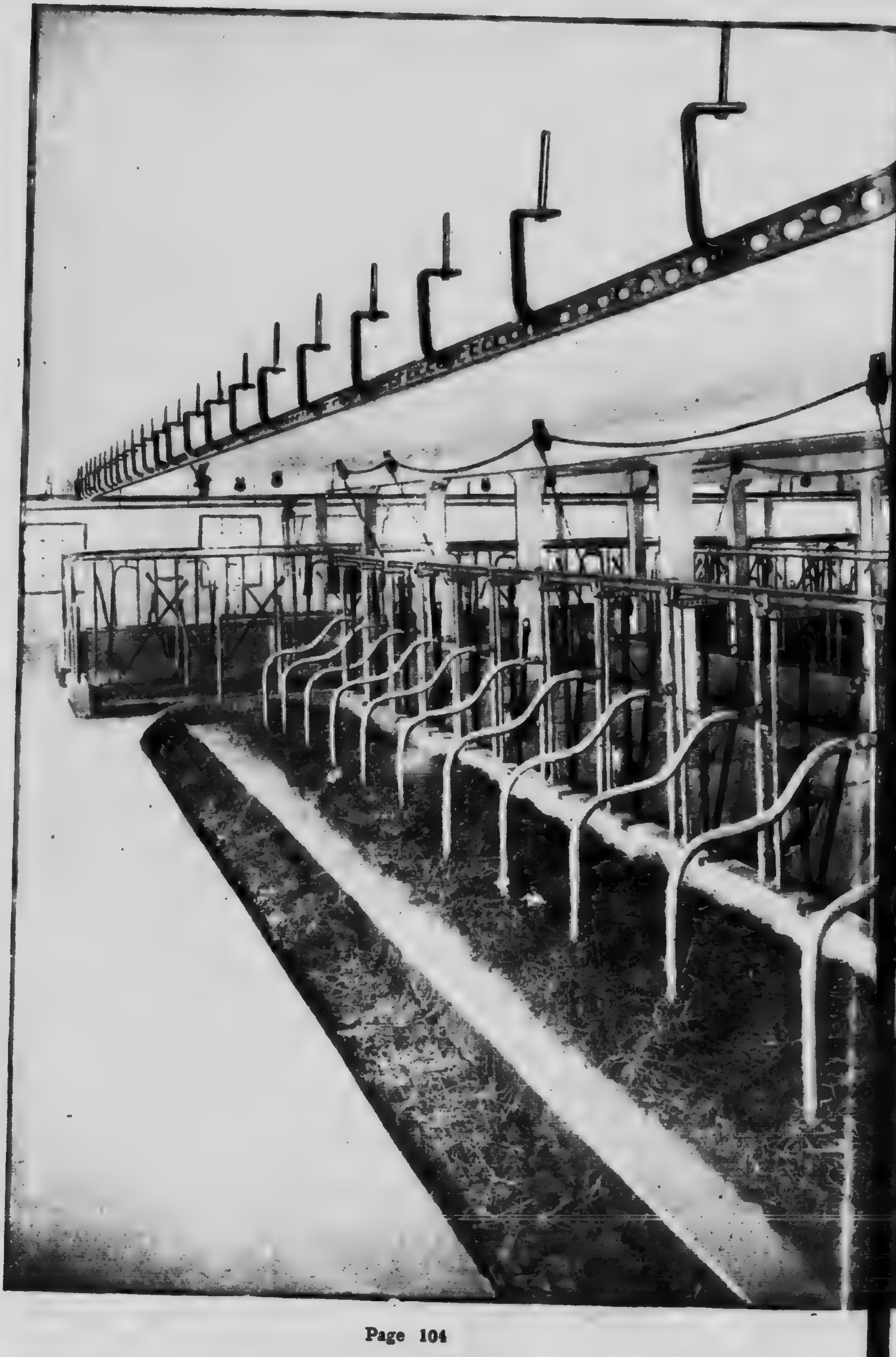
Cows Resting Naturally

[illegible] Stanchion Swings Forward as Cow [illegible]

[illegible]w is comfortable—Cow [illegible] head freely

Barn of Ottawa Dairy Co., Ottawa, Ont.

Barn of Walker Sons, Limited, Walkerville, Ont.



Barn of Felga[illegible] [illegible]ance[illegible] [illegible]ethbridge, Alta.

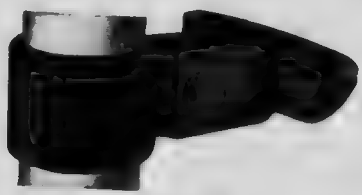


Fig. 530
Stanchion Rest for Double Stalls

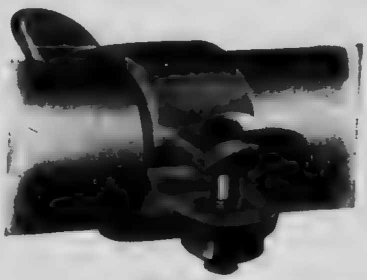


Fig. 441
Stanchion Rest

With the chain hung stanchion the chain requires several inches play. This brings the bottom of the stanchion too high above an 8-inch curb for the comfort of the cow. In consequence the curb has to be hollowed out and the stanchion hung at the bottom of the gap.

The high, level curb, which saves feed and is easy to build, is one of the advantages of BT Galvanized Stalls.

BT Stanchion Rest—Fig. 441

(Spin)

(Patented)

The moving leg of the BT Stanchion, when open, rests on the partition, and not on the stall post, thus leaving a wider space, almost a foot wider than on other stanchions, for the cow to put her head through. There are no troublesome clips to fasten on the post. Just open the stanchion and it falls in place and is kept in place on the partition. There is no chance of the cow putting her head through at the wrong side of the moving leg. By extending over into the next stall, the moving leg blocks the space between the post and the next stanchion and helps to prevent the neighboring cow from putting her head in the wrong place. The stanchion rests are put in place on the partitions in our factory.

If double stalls are being used, a special rest (Fig. 530) is provided to be attached to the posts where there are no partitions. It is in place on the posts when they are shipped. These stanchion rests are galvanized.

What Our Customers Think of BT Stanchions

Oct. 1918

Beatty Bros. Limited,
Fergus, Ont.

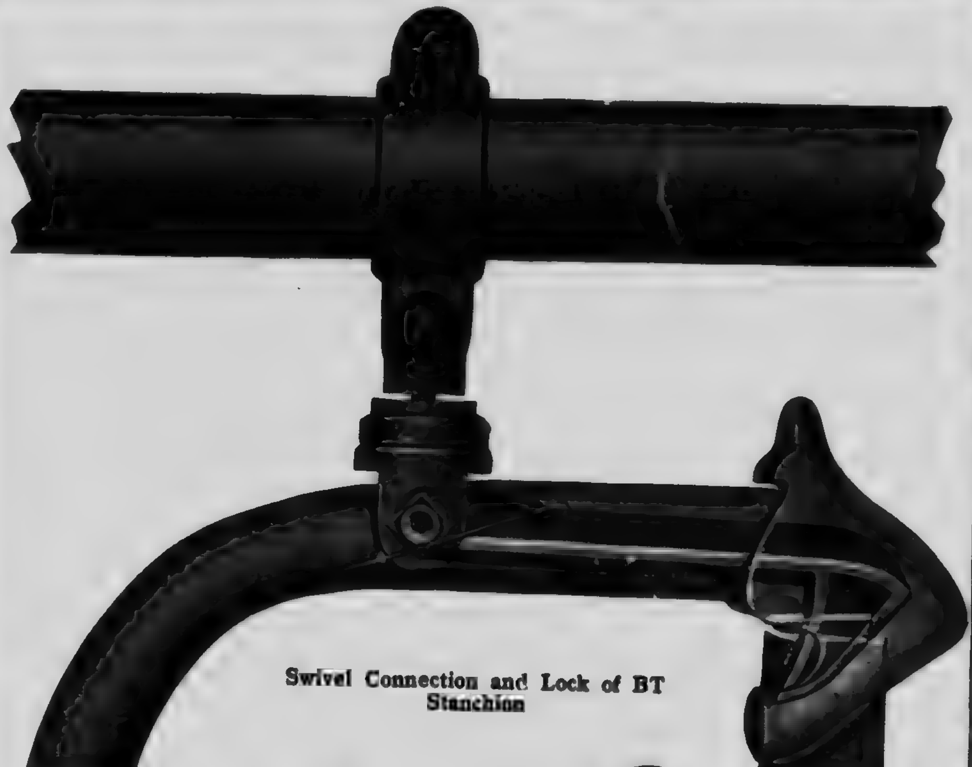
Gentlemen:—

We are in need of some equipment for our stanchions. **We have had them since 1910, and they have proven most satisfactory.** I have seen an attachment that sets the stanchion back about 6 inches. Quote your best prices. We need about twenty.

Yours truly,

W. G. POWELL & SON.

The attachment which Mr. Powell mentions is our Aligning Service, described on page 118.



Swivel Connection and Lock of BT Stanchion

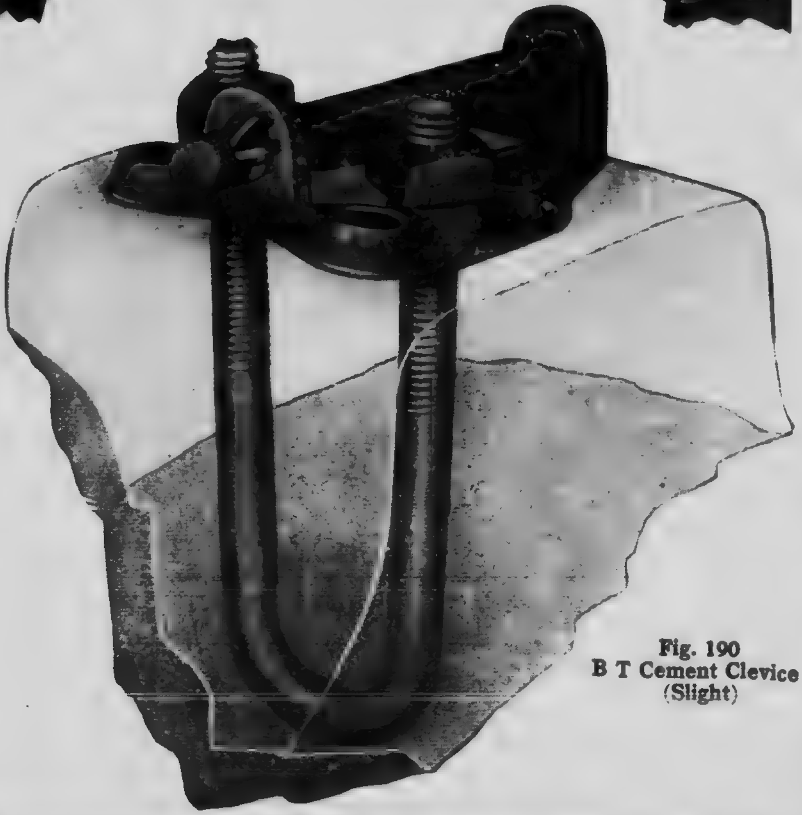


Fig. 190
B T Cement Clevice
(Slight)

BT Adjustable Steel Stanchion—Fig. 270

(Saltire)

We recommend the BT Adjustable Steel Stanchion, Fig. 270, page 110, to the farmer who has mixed stock. For most stables our standard BT Steel Stanchion, Fig. 541, 7½-inch width is sufficient. It will tie most cattle. However there are some farmers who have a few very small animals to tie up in the same stable with a number of very large ones. The very small animals grow and the large ones are often sold off and their places taken again by smaller beasts. In such cases it is convenient to have a few of the BT Adjustable Steel Stanchions.

This adjustable stanchion is similar to the BT Stanchion, Fig. 541, in most respects. It has the same strong frame as Fig. 541, extending solidly across the top and bottom. The moving leg opens right down to the floor. The lock is the same. The swivel connection at the top and the short chain below are the same. The bottom is square with slightly rounded corners, as is the case with BT Stanchion, Fig. 541. The adjustable stanchion is also hinged at one side. The top clamp which attaches it to the stall is the same as the clamp which attaches stanchion Fig. 541.

The stanchion is constructed to be just as strong when adjusted for a large animal as when adjusted for a small one. No matter to what it is adjusted, it hangs centrally in the stall.

The adjustment can be made quickly. The castings are made of malleable iron, and are heavy.

The stanchion is adjustable from 5½ inches to 8½ inches.

It is regularly finished in black japan, but can be galvanized for a small extra charge.

BT Adjustable Wood Stanchion—Fig. 313

(State)

The BT Adjustable Wood Stanchion, Fig. 313, page 110, is sold for use with wood frame only.

The side bars are made of well seasoned maple, reinforced by heavy malleable braces.

The top and bottom are made of high carbon steel, 2 inches wide. All holes are carefully punched by special machinery to insure perfect fit for all rivets. The lock is malleable iron and is easily unlocked by the gloved or mittened hand.

Neck space is adjustable from 5 to 9 inches.

Metal parts are finished in black japan. Wood is varnished.

The following extras are necessary in addition to the wood stanchion:—1 top hook, Fig. 183, page 144; 1 cement clevice, Fig. 190, page 107; if curbs are cement or 1 wood clevice, Fig. 185, page 144, if wood curbs are used.

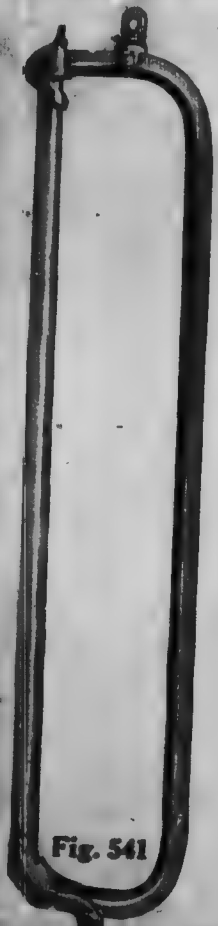


Fig. 541

BT Steel Stanchion. (Sack).

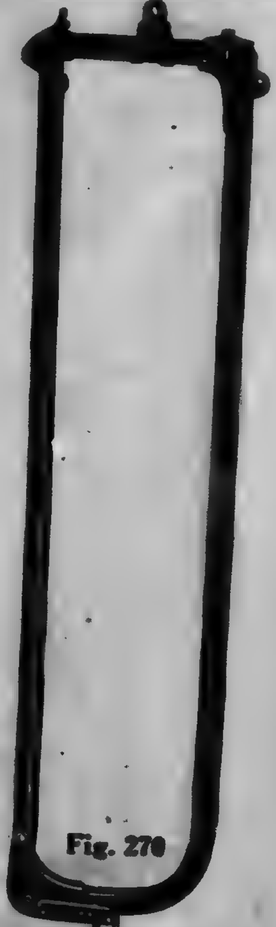


Fig. 270

BT Adjustable Stanchion (Sattire), adjusted for large animals.

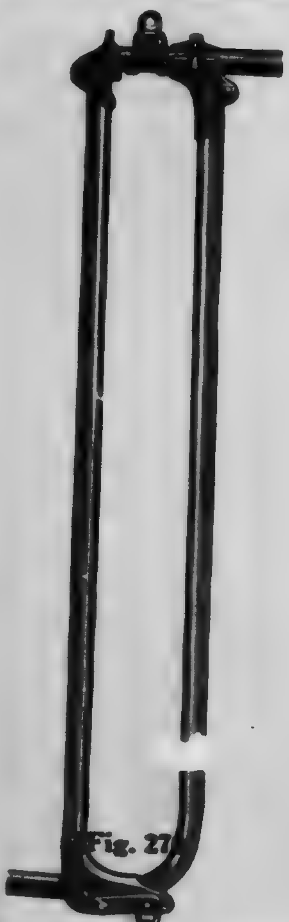


Fig. 27

Adjusted for small animals.

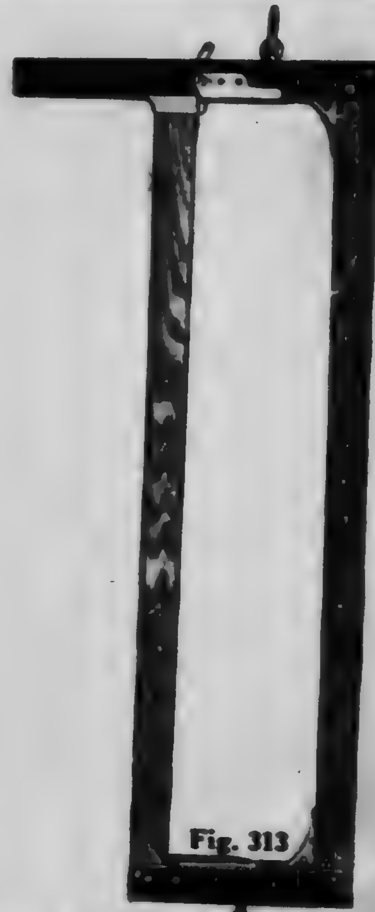


Fig. 313

BT Adjustable Wood Stanchion. (State)

SPECIFICATION

The BT Steel Stanchion—Fig. 541, Page 110

(Sack)

The BT Stanchion is made of heavy, high carbon U-Bar steel 5/32 inch in thickness. The 9½-inch size is nearly 7/32 inch in thickness. The sides of the stanchion are 1¼ inches wide and 1 5/16 inches deep. The material in the ordinary stanchion weighs 1½ pounds per foot. It will stand even greater strains than tubing of the same weight.

The BT Stanchion is made in widths of 6½ inches, 7½ inches and 9½ inches (inside measurement); stanchions with 5-inch or 8-inch neck space are made by using wood linings on the 6½ inch and 9½ inch sizes respectively.

The 7½ inch size is usually sold, and is always shipped unless some other size is specified. It too can be adjusted by means of wood strips to suit younger stock. We will supply wood strips at a slight extra charge. The length of the BT Stanchions is 4 feet over all, exclusive of attachments at top and bottom. The inside of the bottom of the stanchion should be 2½ inches from the top of the curb. The distance from the top of the curb to the underside of the head rail should be 4 feet 3 inches.

All stanchions are finished in black japan unless ordered galvanized.

The 7½ inch BT Steel Stanchion (Fig. 541) weighs 17½ pounds. The 6½ inch size weighs 17 pounds and the 9½ inch size, 20 pounds.

The BT Adjustable Steel Stanchion—Fig. 270, Page 110

(Sattire)

The specifications for the material in the BT Adjustable Steel Stanchion are the same as those given above for our regular stanchion, Fig 541.

The BT Adjustable Steel Stanchion is made in one size only and is adjustable in width from 5½ inches to 8½ inches. This stanchion weighs 20 pounds. See detailed description on page 109.

The BT Adjustable Wood Stanchion—Fig. 313, Page 110

(State)

See description on page 109.

Side bars are of maple, well seasoned, carefully milled, shaped, polished and oiled.

The lock is malleable iron.

Neck space is adjustable from 5 to 9 inches. The BT Wood Stanchion weighs 15 pounds.

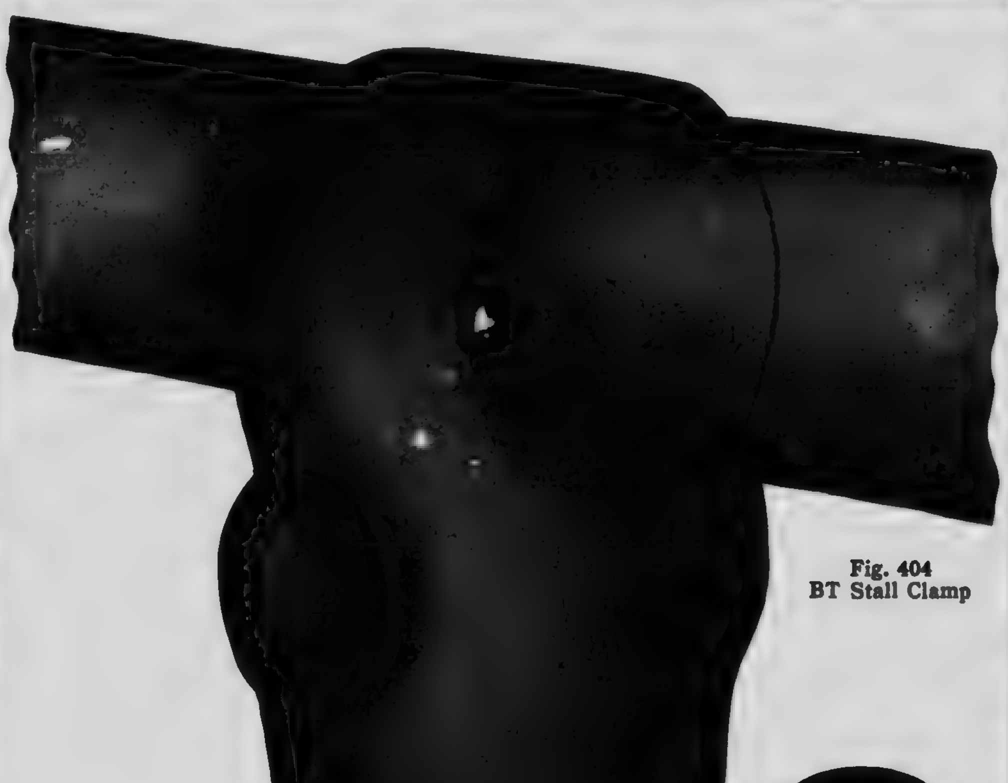


Fig. 404
BT Stall Clamp

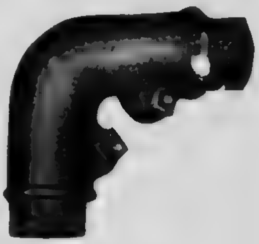


Fig. 415
BT Elbow Clamp

Actual size of bolt which goes right through this clamp and the stall

The BT Stall Clamp—Fig. 404

(Patented)

No steel stable equipment is stronger than the clamps which hold the posts, partitions and head rail together. This point is therefore worth your attention.

BT Stall Clamps are made of malleable iron; they are as heavy and as strong as the steel of the stalls.

Note that BT Stall Clamps are made from heavy malleable iron,—not pressed steel. Clamps that are stamped or punched out of sheet steel are too light. They have not the necessary strength and are not satisfactory.

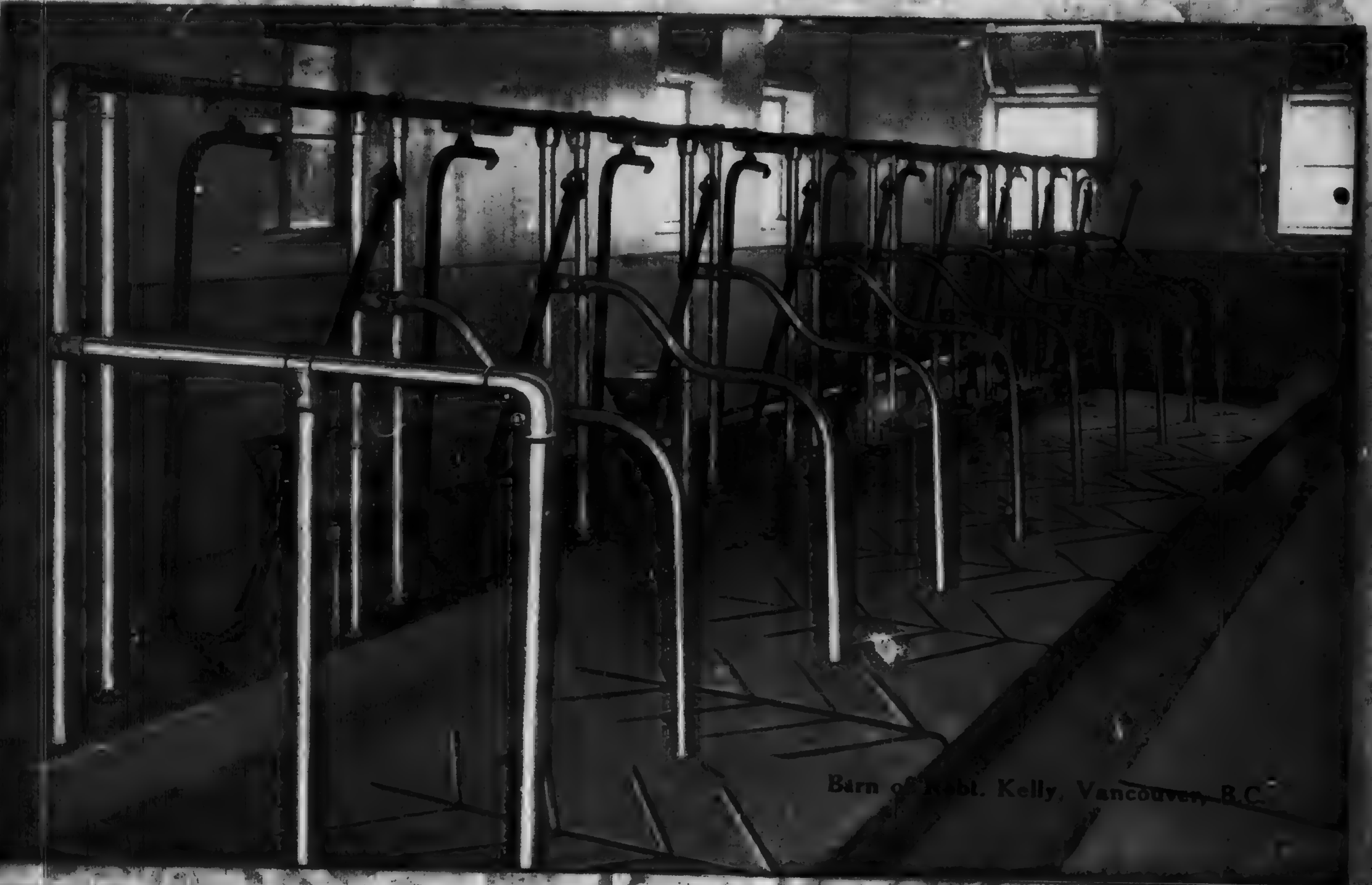
Note the strength and neatness of BT Clamps as you read this book. Fig. 404 (page 112), shows the clamp that is used more than any other. It holds the partition to the post and the post to the head rail. It is very smooth and sanitary, the flanges overlapping to keep out the dust. The ribs are inside, where they do not gather dirt.

The clamp is held in place by one big, solid bolt, which goes right through the tubing of the stall. This makes an immovable connection. The clamp does not depend upon friction alone to hold it solidly. The big bolt is much stronger than the several small ones used on some styles of clamps. It is easier to tighten up, there is less danger of coming loose, and no trouble with the thread stripping. On page 112 the cut shows this clamp (a little less than actual size), and the bolt and nut used to hold it.

Fig 415, shown on page 112, is the neat clamp used to finish a corner. It is used on the BT Finished Ends, also on BT Gates.

BT Clamps are always put in place on the stalls before being shipped. Fig. 415 (page 112), clamp is used on the headrail at the end of a row of stalls; it is riveted in place to keep the headrail from turning.

BT Clamps are galvanized.



Barn of Robt. Kelly, Vancouver, B.C.

Triple Curve Partitions—Fig. 440

(Stamp)
(Patented)

The BT Triple Curve partitions are invaluable protections to the cow and no careful farmer will be without them. We do not recommend double stalls where two cows are tied side by side without a partition between. The cost of the extra partitions to make single stalls is not great, and if they prevent a valuable animal having its udder ruined by the trampling of its neighbor, they will have paid for themselves many times. The partitions are a help in getting the cows tied in their stalls, and when tied a few times each cow will learn to know her own place.

Without these partitions it is very hard to keep the cows clean. Cows are bound to ed sideways a little and droppings will constantly fall on the cattle stand.

They are much less bulky than the old-fashioned wood partitions, so that you can get more stalls in the stable without any crowding.

The triple curve gives a very handsome appearance to a row of BT Stalls They are a great improvement on the single curve from the standpoin of appearance. They also allow the cow to turn her head and walk out of the stall. She does not require to back out.

These BT Partitions are bent by a special machine which we have invented for the purpose and have patented. It bends every stall alike, as you will see by studying the photos in this catalog. The old method was to bend the partitions by hand. It is impossible to bend triple curve partitions by hand and make a neat job. No two stalls are alike in appearance and the tubing is flattened at the ends. Without our special patented machinery, it is impossible to make the triple curve partitions properly. The single curve partitions went out of date years ago.

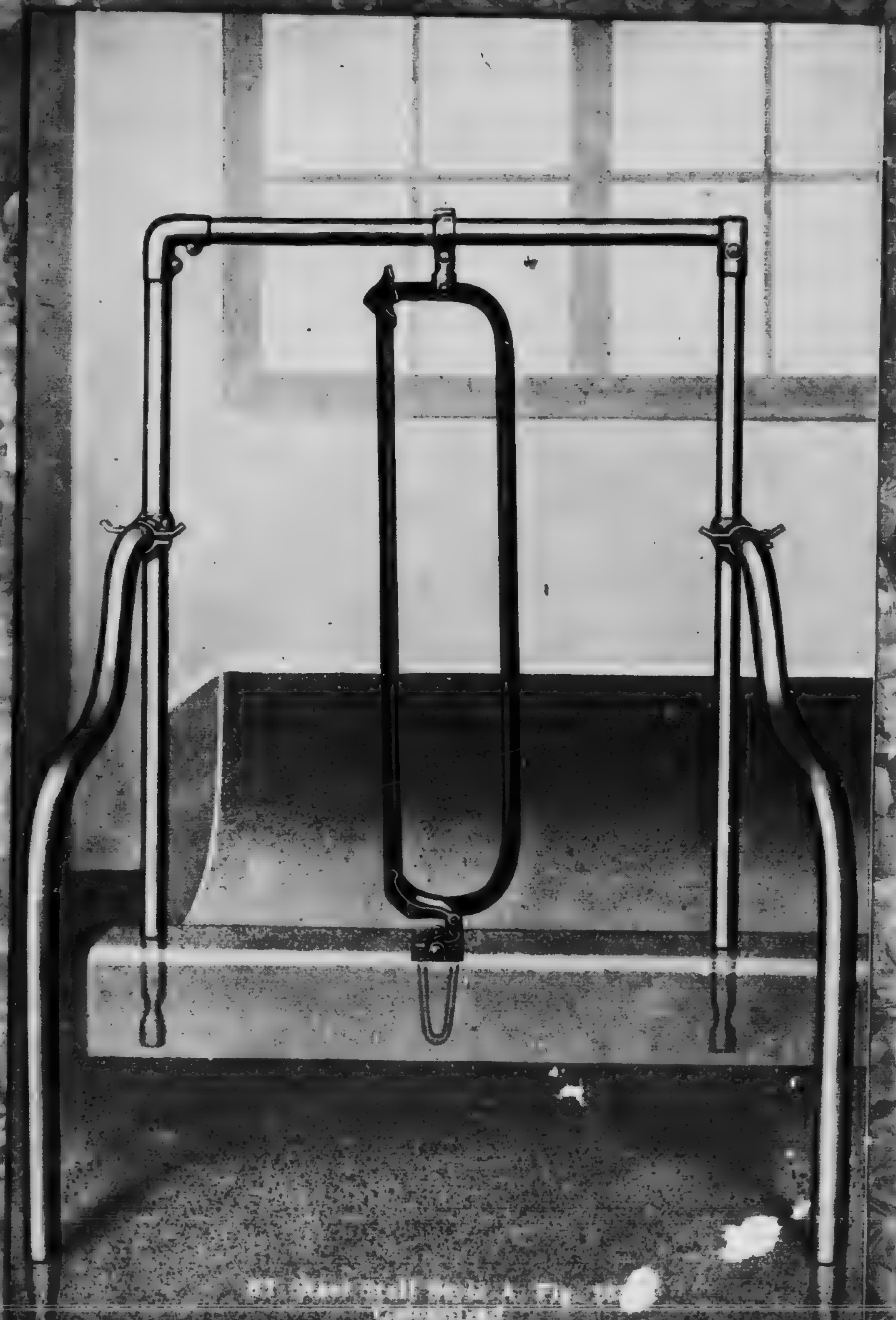
The height of the stall partitions can be regulated to suit the breed of cows, by setting the partitions further in the concrete for smaller breeds.

The partitions form a solid brace for the upright post which supports the weight of the stanchions and headrail. BT Partitions are attached 6 inches higher on the post than others and so brace the stall more solidly. The BT Partition is galvanized and weighs, complete, 18 pounds.

How the Partitions are Anchored

BT Stall Partitions are anchored solidly in the cement floor. The partition is flattened on one side and expanded on the other, so that the concrete can hold it firmly.

The back of BT Stall Partition is 3 feet 3 inches from the front of the stall post. They are usually attached to the stall post 3 feet 4 inches above the level of the cattle stand, the measurement being taken from cattle stand to top of partition.



SPECIFICATIONS.

BT Complete Stall, Style A—Fig. 283

(Star)

(Patented)

Post and Headrail—Of 1⅞ O.D. solid welded steel tubing.

Partition—1⅞ O.D. solid welded steel tubing, bent to form triple curve, as described on page 115.

Posts and partitions are expanded where they go in the cement to anchor them securely.

CLAMPS—Posts and partitions are furnished complete with BT One-Bolt Stall Clamp (page 112). This is made of malleable iron. It is dust proof. Corner clamp. (Fig. 415, page 113), is furnished, to join headrail and post at each end of row. Malleable iron top clamp is furnished for attaching stanchions to headrail.

Stanchion—BT Steel Stanchion (Fig. 541, page 110), made of high carbon U-bar steel 1¼ inch x 1 5/16 inch x 5/32 inch. Lock is cow-proof, but can be opened with thumb, Malleable lock casting is riveted in place with 5/16 rivet. Hinge is malleable and is riveted to stanchion with three ⅜ inch rivets. Stanchion has malleable swivel connection at top which allows it to turn completely around. Weight of stanchion 17 pounds, 3 feet 8 inches long inside. Neck space 7½ inches.

Cement Clevice—See page 107. It consists of ½ inch steel U-shaped anchor and a malleable iron clevice, provided with three pairs of holes to allow an adjustment of the stanchion 6 inches.

Stanchion Rest—For holding stanchion when open. Every partition is furnished with a stanchion rest. (Fig. 441, page 106).

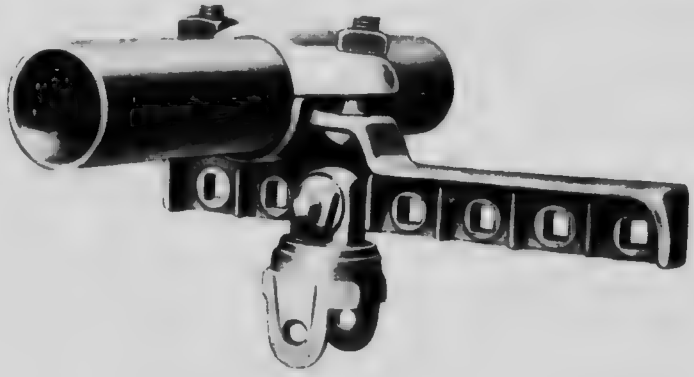
Finish—All stall tubing, clamps, bolts and other parts (except stanchions) are galvanized by electric or cold process and finished in grey enamel paint. Before galvanizing, every piece is thoroughly cleaned to remove scale, rust or other impurities. Stanchion is finished in black japan.

Weight—About 58 pounds per stall.

Finished Ends—To complete a row of stalls, finished ends are furnished at extra charge. See page 148.

Stalls are shipped knocked down for convenience in handling. All clamps are put in their proper places before they leave our factory.

GALVANIZED



The BT Aligning Device—Fig. 193

(Solemn)

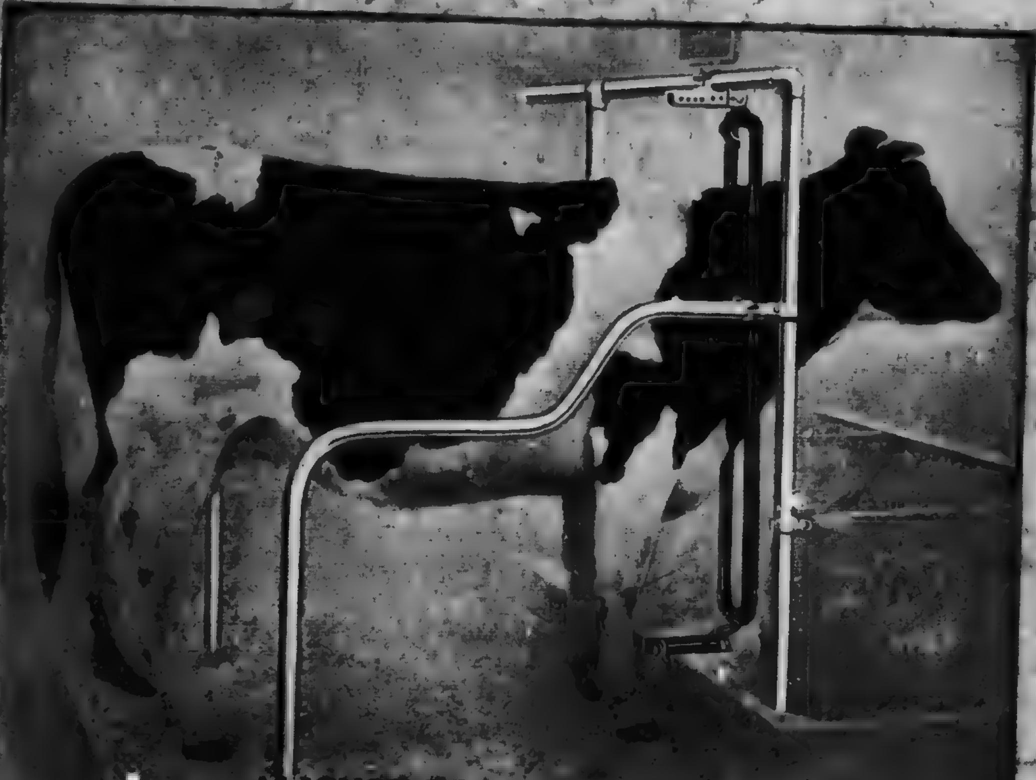
(Patented)

If cows are to be kept clean, it is necessary to have a good gutter and to keep the cows lined up to it. With a BT Stanchion, the average herd of cows can be kept perfectly lined up on the average cattle stand. But one is continuously taking out the aged animals and giving their places to younger stock. There are usually long and short cows in the stable. The long ones tend to stand back from the cattle stand in the gutter, and the short ones stand away forward on the cattle stand, and dung on it. There should, therefore, be Aligning Devices on each stall to keep the cows evened up to the gutter If you have an unusually large cow or two, you can turn the Aligning Device the other way so that stanchion is carried out into the manger. This will allow you to build your cattle stand a uniform average width.

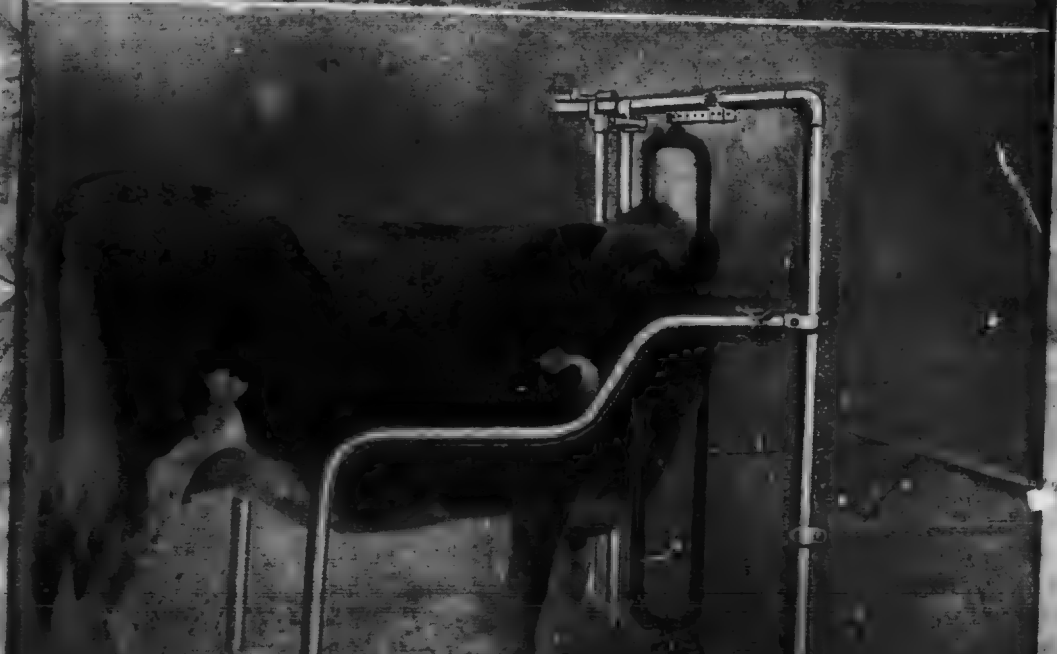
On page 119 you will see how the stanchion is moved forward to the last notch in the Aligning Device for a large cow and back to the first notch for a small one. As an animal grows, the stanchion can be moved forward from notch to notch.

The Aligning Device (Fig. 193) is illustrated at the top of this page. The Cement Clevice which holds the stanchion below also admits of some adjustment. See Fig. 190 on page 107. The nuts may be loosened from the U-Bolt and the malleable casting moved backward or forward as desired. It can be adjusted a distance of 6 inches. The BT Aligning Device is made of malleable iron and weighs 1.15 pounds. It is fastened by a clamp to the headrail. A tit on the clamp, which fits into a drilled hole in headrail, is used to hold the device solidly on the headrail, preventing it from turning with the weight of the stanchion. It is galvanized.

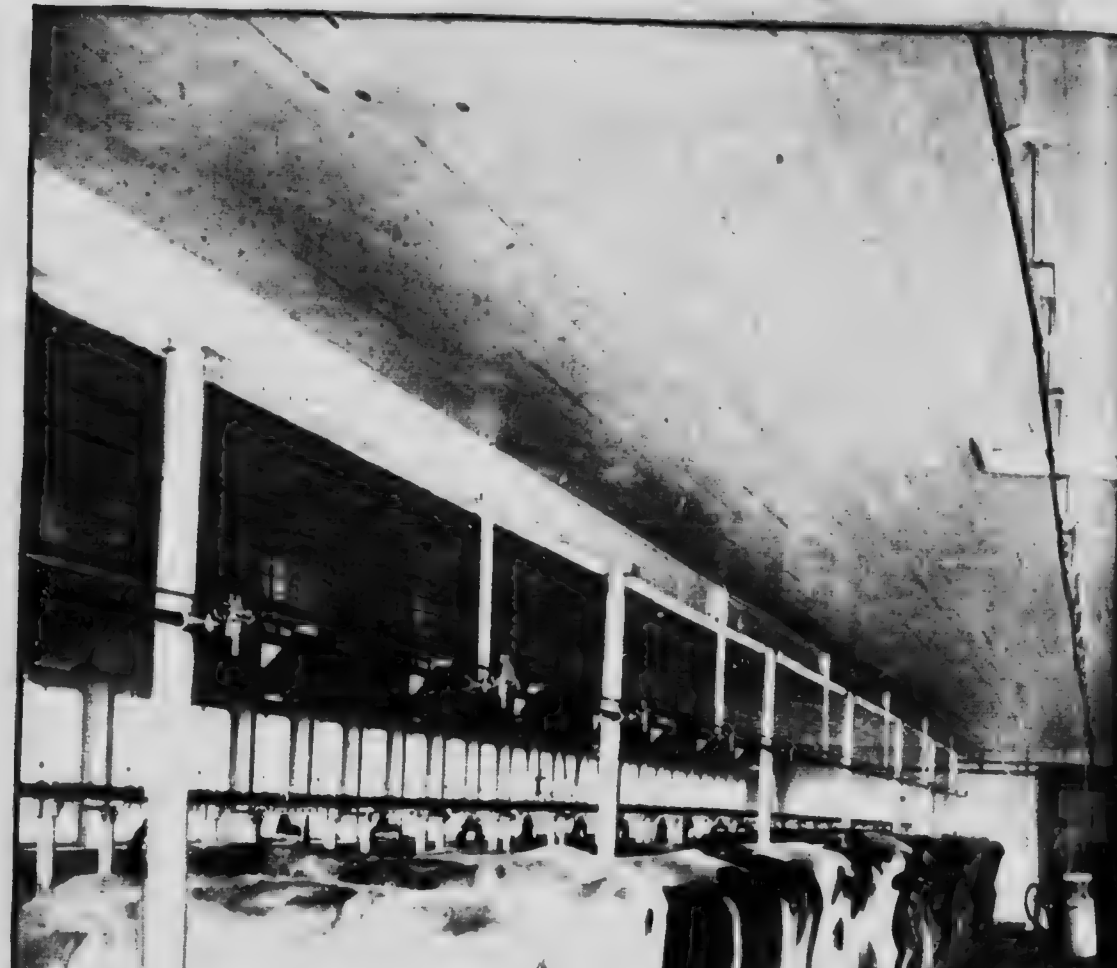
You will find that this device is a great help in winter time to keep the flanks and udders of the cows free from particles of manure. It saves much trouble in curry-combing and scrubbing down the cows, and in keeping them clean.

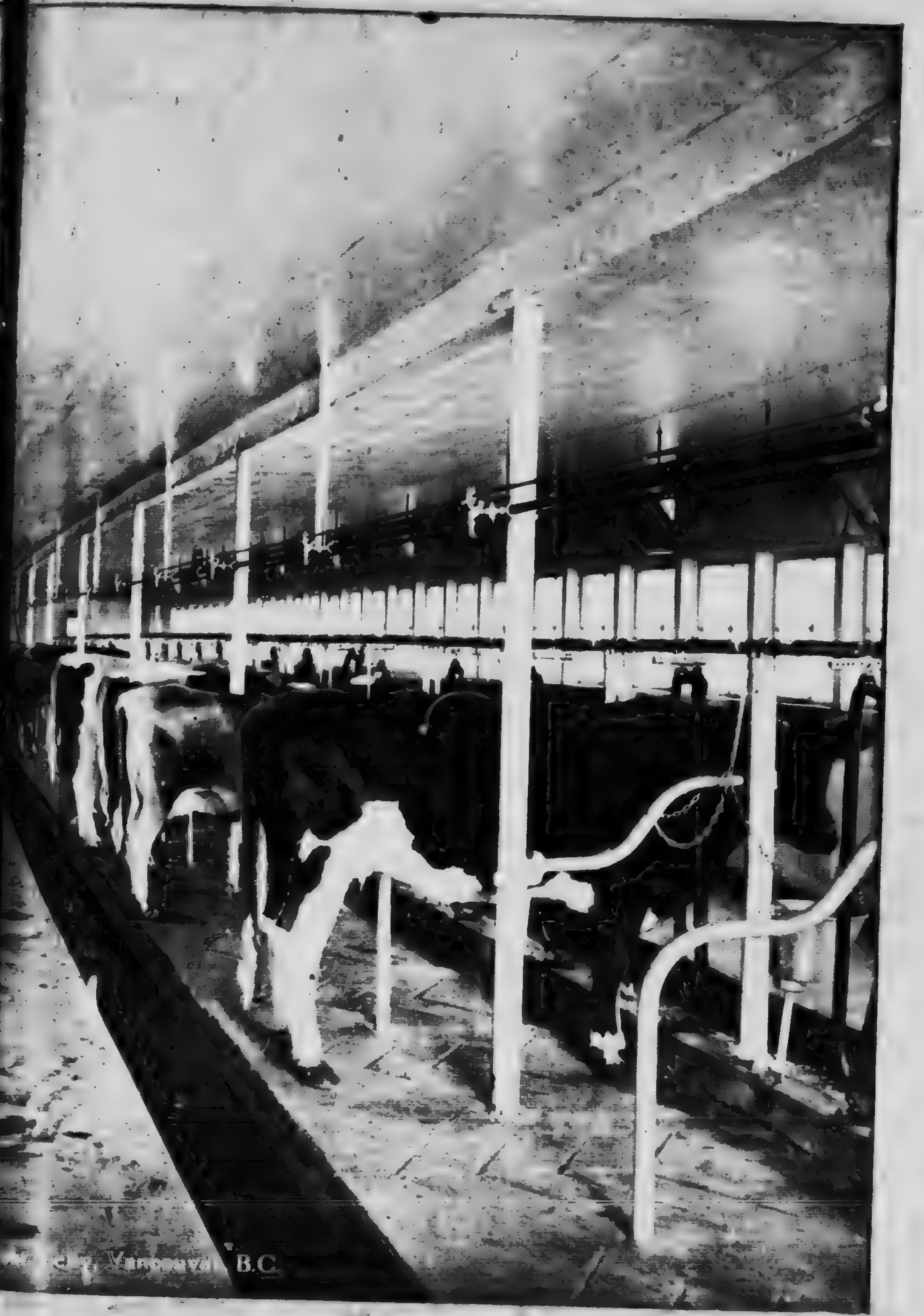


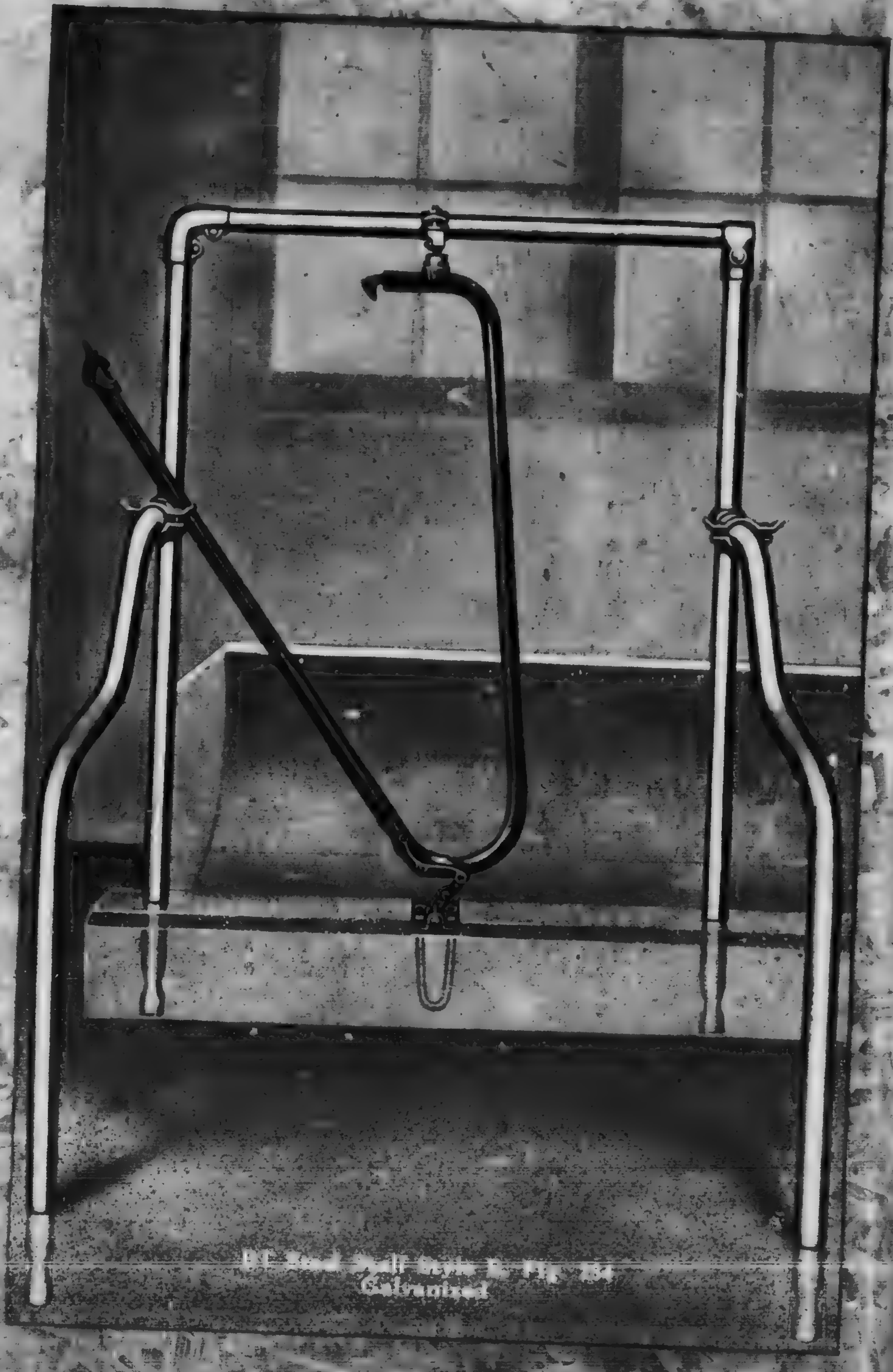
ALIGNED FOR LONG COW



ALIGNED FOR SHORT COW




[illegible] Vancouver, B.C.



B.T. Steel Stall Style E. Fig. 234
Galvanized

SPECIFICATIONS

BT Complete Stall, Style B—Fig. 284

(Stain)

(Patented)

Post and Headrail—Of 1⅞ O.D. solid welded steel tubing.

Partition—1⅞ O.D. solid welded steel tubing, bent to form triple curve, as described on page 115.

Anchors—Post and partition are expanded where they go in the cement, to anchor them securely.

Clamps—Post and partition are furnished complete with BT One-Bolt Stall Clamp (page 112). This is made of malleable iron. It is dust proof. Corner clamp (Fig. 415, page 112), is furnished, to join headrail and post at each end of a row.

Stanchion—BT Steel Stanchion (Fig. 541, page 110), made of high carbon U-bar steel, 1¼ inch x $1\frac{5}{16}$ inch x 5/32 inch. Lock is cow-proof, but can be opened with thumb. Malleable lock casting is riveted in place with $\frac{5}{16}$ rivet. Hinge is malleable, heavily ribbed, and is riveted to stanchion with three ⅜ inch rivets. Stanchion has malleable swivel connection at top which allows it to turn completely around. Weight of stanchion, 17 pounds; 3 feet 8 inches long inside. Neck space, 7½ inches.

Cement Clevice—See page 107. It consists of ½ inch steel U-shaped anchor and malleable iron clevice, provided with three pairs of holes to allow an adjustment of the stanchion 6 inches.

Stanchion Rest—For holding stanchion when open. Every partition is furnished with a stanchion rest. (Fig. 441, page **106.**)

Aligning Device—Of malleable iron, immovable on headrail, Permits an adjustment of the stanchion of 8 inches, or, if reversed, 13 inches, (see page 118.)

Finish—All stall tubing, clamps, bolts and other parts (except stanchions) are galvanized by electric or cold process and finished in grey enamel paint. Before galvanizing every piece is thoroughly cleaned to remove scale, rust or other impurities. Stanchion is finished in black japan.

Weight—About 60 pounds per stall.

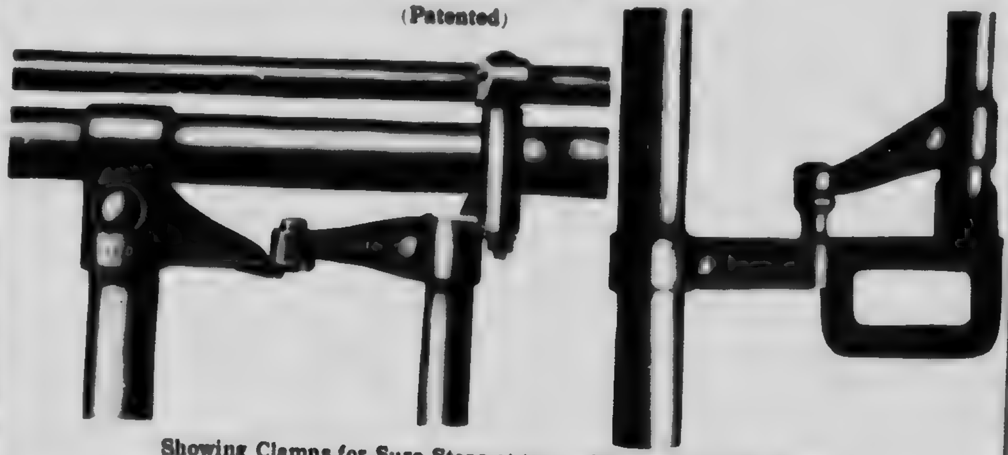
Finished Ends—To complete a row of stalls finished ends are furnished at extra charge. (See page 148.)

Stalls are shipped knocked down for convenience in handling. All clamps are put in their proper places before they leave our factory.

GALVANIZED

BT Sure Stop Posts

(Patented)



Showing Clamps for Sure Stops at top and bottom of Stall Post

Cows are sometimes very stupid, and their stupidity causes no end of trouble. One annoying habit is this:—Instead of putting their heads in the stanchions they poke them through to one side, between the stanchion and the stall post.

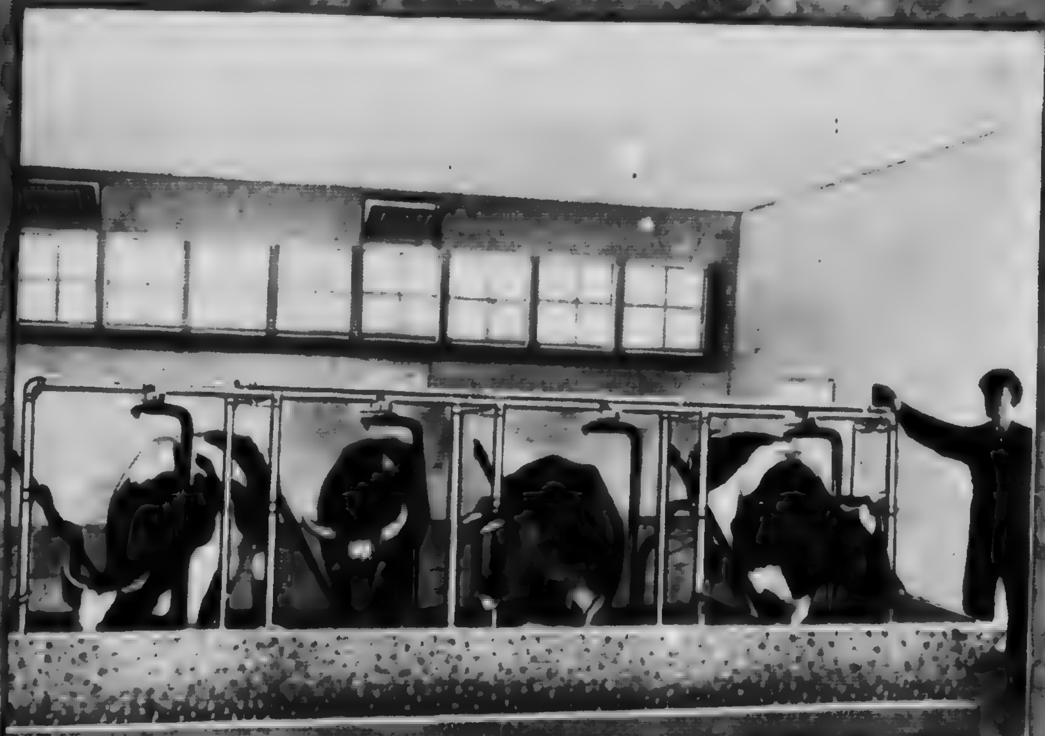
The old way of overcoming this difficulty is to take a club and drive them back again. Of course, this causes confusion and noise and wastes a lot of valuable time. Moreover, as every blow and every word of abuse reduces the milk yield, it is certainly worth while to find some better way.

BT Steel Stalls are built to stop this annoyance. By blocking the space between the stanchion and the stall post, they steer the cow into her stall, so that she cannot help putting her head into the stanchion. It is easy to see how much fuss and confusion this feature saves.

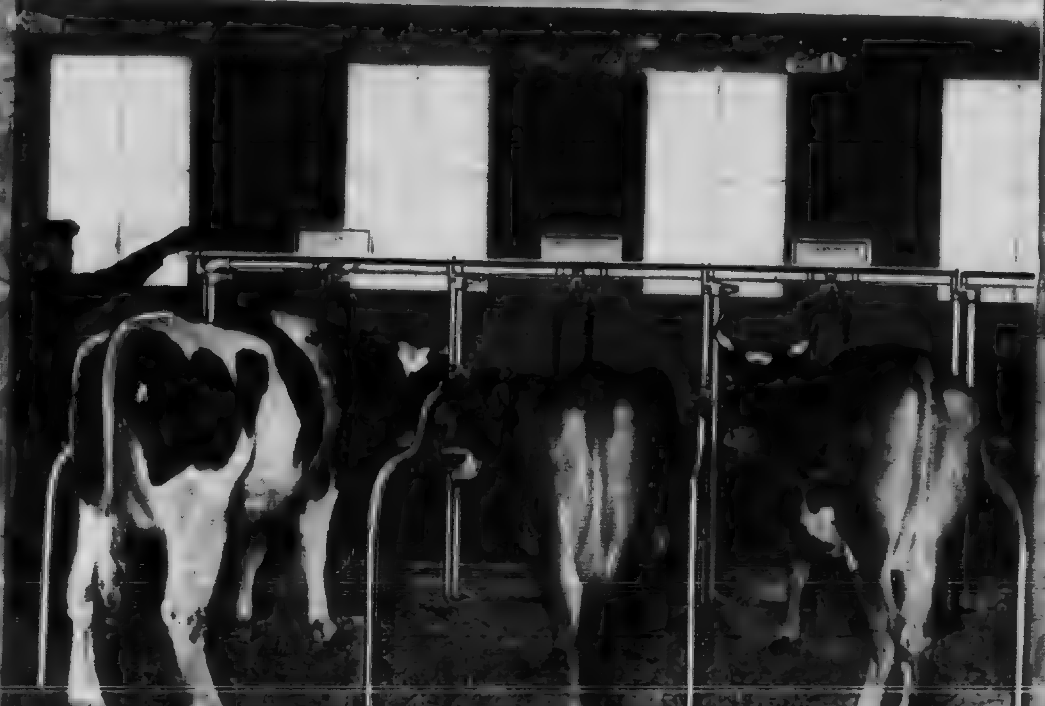
The difficulty is overcome by means of a Swinging Sure Stop Post. There is one of these attached to each stall. The Sure Stop Posts are all operated by a shift rail at one end of the row. Before the cows enter the stall, the Swinging Sure Stops are thrown into the open spaces between the stanchions and the upright stall posts. This makes sure that the cow will put her head in the stanchion; it is the only open space available to her. When the cows are tied, the Sure Stops are thrown back close to the stall posts again, as shown in the centre illustration on page 125.

A stationary post between stanchion and steel post would block the space. It has the great disadvantage, however, of restricting the cow's movements after she is tied. It is impossible for her to turn her head to lick herself with that extra post in the way. The beauty of the BT Swinging Sure Stop Posts is that they can be swung out of the way after the cows are tied so that they can turn their heads freely, to either side, when they want to. See bottom illustration page 125

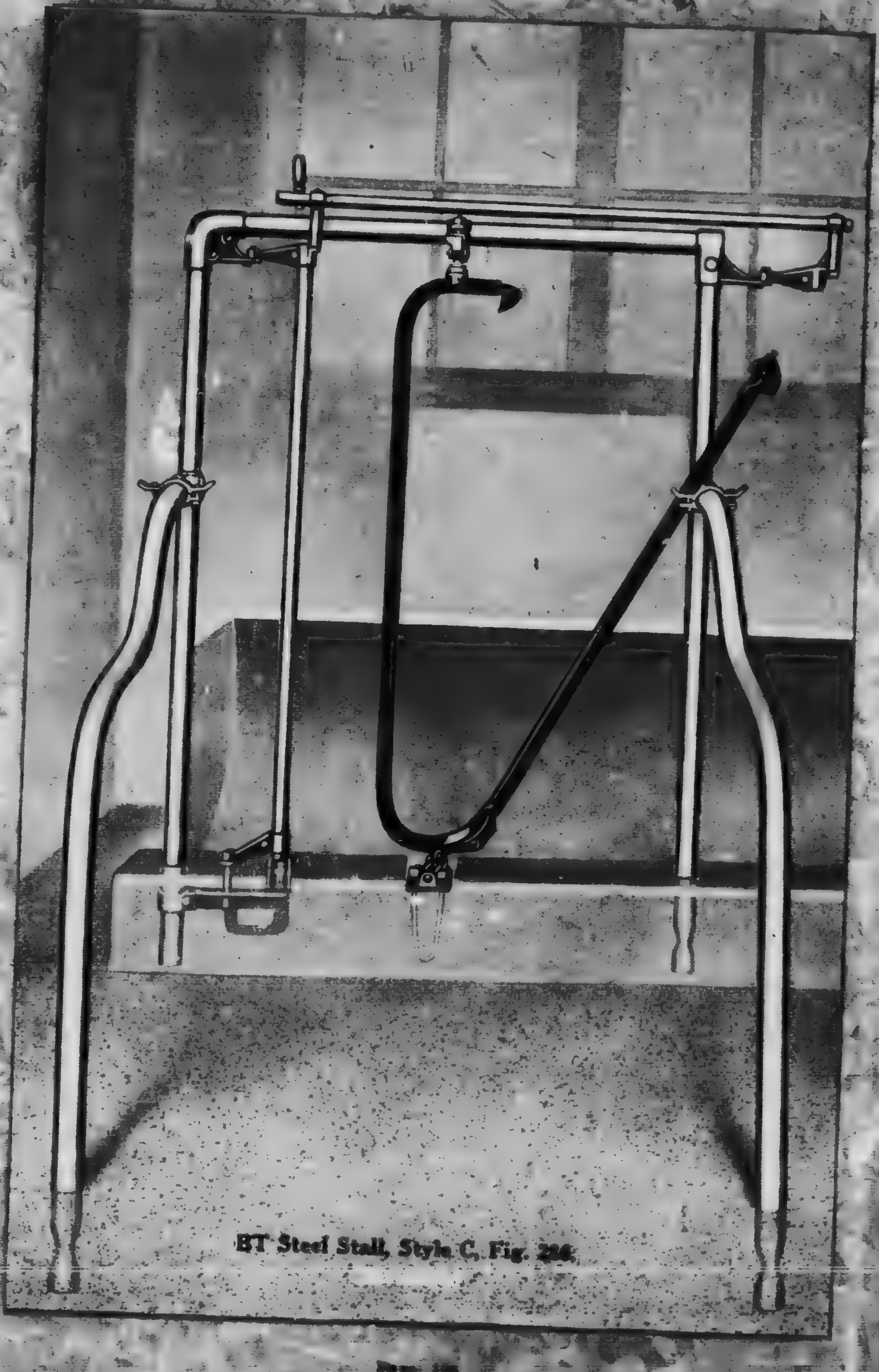
One movement of the shift rail, to which the Sure Stop Posts are attached, operates the whole row. These Sure Stops work so easily that a child can handle them. They save a great deal of time and confusion in tying the cows.



Closing sure stop Post. The BT sure stop steers the cow right.



Putting sure stop back. Cow's head room is not reduced



BT Steel Stall, Style C, Fig. 226

SPECIFICATIONS

BT Complete Stall, Style C—Fig. 286

(Stall)

(Patented)

Post and Headrail—Of 1⅞ O.D. solid welded steel tubing.

Partition—1⅞ O.D. solid welded steel tubing, bent to form triple curve as described on page 115.

Clamps—Post and partitions are furnished complete with BT One-Bolt Stall Clamp, (page 112). This is made of malleable iron. It is dust proof. Corner clamp, (Fig. 415, page 112), is furnished to join headrail and post at each end of a row.

Stanchions—BT Steel Stanchion (Fig. 541, page 110), made of high carbon U-bar steel, 1¼ inch x 1$\frac{5}{16}$ inch x 5/32 inch. Lock is cow-proof but can be opened with thumb. Malleable lock casting is riveted in place with $\frac{5}{16}$ rivet. Hinge is malleable and is riveted to stanchion with three ⅜ inch rivets. Stanchion has malleable swivel connection at top, which allows it to turn completely around. Weight of stanchion, 17 pounds, 3 feet 8 inches long inside. Neck space, 7½ inches.

Cement Clevice—See page 107. It consists of ½ inch steel U-shaped anchor and a malleable iron clevice, provided with three pairs of holes to allow an adjustment of the stanchion 6 inches.

Aligning Device—Of malleable iron, immovable on headrail. Permits an adjustment of the stanchion of 8 inches, or, if reversed, 13 inches. (See page 118.)

Sure Stop Post— 1$\frac{5}{16}$ O.D. steel tubing, shift rail 1$\frac{1}{16}$ O.D. solid welded steel tubing (pages 124 and 125). Clamps for attaching sure stop at top and bottom, as on page 124.

Finish—All stall tubing, clamps, bolts and other parts (except stanchions) are galvanized by electric or cold process and finished in grey enamel paint. Before galvanizing every piece is thoroughly cleaned, to remove scale, rust or other impurities. Stanchion is finished in black japan.

Weight—About 76 pounds per stall.

Finished Ends—To complete a row of stalls finished ends are furnished at extra charge. See page 148.

Stalls are shipped knocked down for convenience in handling. All clamps are put in their proper places before they leave our factory.

GALVANIZED

The fast eater robs her neighbor without Individual Mangers.

You can't feed different amounts or different combinations without the Mangers.

BT Individual Raise-and-Lower Mangers

(Patented)

You keep cows to make money. You don't keep them as pets.

The profit you make from your cows is the difference between what they give you and what you give them.

What you give them principally is feed and labor.

Feed is costly. It is becoming more costly every year. It is 100 per cent. more costly now than a few years ago. The difference between economical and extravagant feeding is frequently the only difference between profit and loss.

The careful dairyman knows this. The man who is making money from feeders and stockers knows it too. Each year they strive to make a little more money from their stock by being a little more careful of the feed.

They don't skimp their cows, or starve them. But they recognize that no two animals require the same amounts nor the same kinds of feed. They watch their cows and give each beast just what she needs for maximum milk production.

Suppose your ration is corn, oats and wheat bran. Suppose there is a cow that gives a fair mess of milk, but is turning too much feed into flesh and is inclined to get too fat. Feed her less corn meal and more bran.

If you have a cow that is a heavy milker, but inclined to run down in flesh give her less bran and more corn meal.

To make a careful study of each cow, like this, is a most interesting and profitable undertaking. It can be done by the use of the BT Divided Steel Mangers.

Beware the Robber Cow

If you have a greedy cow in your herd that's very fat and giving little or no milk, just keep your eye on her.

Probably she is a fast eater. She bolts all her own feed and reaches over and steals the feed of the cows on each side. She gets more than she can turn into milk. The others are underfed.

Overfeeding does a cow as much harm as underfeeding. Both troubles are extremely harmful to your profits.

The BT Divided Mangers, by providing a separate feeding place for each animal, stop these ills for all time.

Big Milk Yields

Feeding cows in the old-fashioned flat-bottomed mangers is very hard on them. Some feed is sure to fall outside the manger just beyond their reach. Directly this happens the cows get restless. Yet if your cows are to give maximum milk yields, they must be quiet and resting. A cow will work for half the day trying to get at that feed out in the passage, just beyond her reach. This is liable to cause big knees and in any case is bound to cause a falling off in milk production.

BT Mangers are scientifically designed so that every bit of feed is within reach. The cow cannot nose any of it into the passage. She can devote all her energy to making milk while she rests in the stall, quiet and contented.

How Abortion is Sometimes Caused

Not only are big knees caused in this manner, but in pushing herself forward to reach the feed, the cow's hind feet slip and push the bedding into the gutter.

A sudden slipping of the hind feet, or straining for feed, sometimes causes abortion or perhaps permanent injury to the cows.

BT Mangers are Self Cleaning

Notice that the BT Manger has no bottom, a concave trough in the floor serving that purpose. The manger front and partitions are in one piece and the whole row of mangers is easily lifted by an endless chain windlass leaving only the smooth, continuous concrete trough, which is readily swept and cleaned. This Raising Windlass is described on page 143.

The bottom of the trough is so shaped that the feed comes exactly to the right place for the cow to reach it most conveniently, even to the last mouthful. For, although the back of the trough is formed by the square curb, which prevents the cows from working the feed out, the bottom is curved enough before touching the curb to insure accumulation of feed in the centre of the trough, directly under the nose of the animal.

Use Waterbowls with Mangers

We do not recommend watering in the mangers. This method would cause any disease, which might affect one animal, to spread through the whole herd. The water bowls give individual watering places. In addition, they keep the water constantly before the cows, and they can drink as much as they want and drink whenever they feel like it. The water is kept at an even temperature so that it does not injure them or waste their body heat. Manger divisions are cut out for the bowls and reinforced with a heavy steel band around the edge that is cut to make them perfectly rigid, and attached to the stall post. A half-inch steel hinge encircles the bowl and allows the manger to be raised for cleaning. The construction of this hinge is well illustrated on page 186.

Construction of BT Mangers

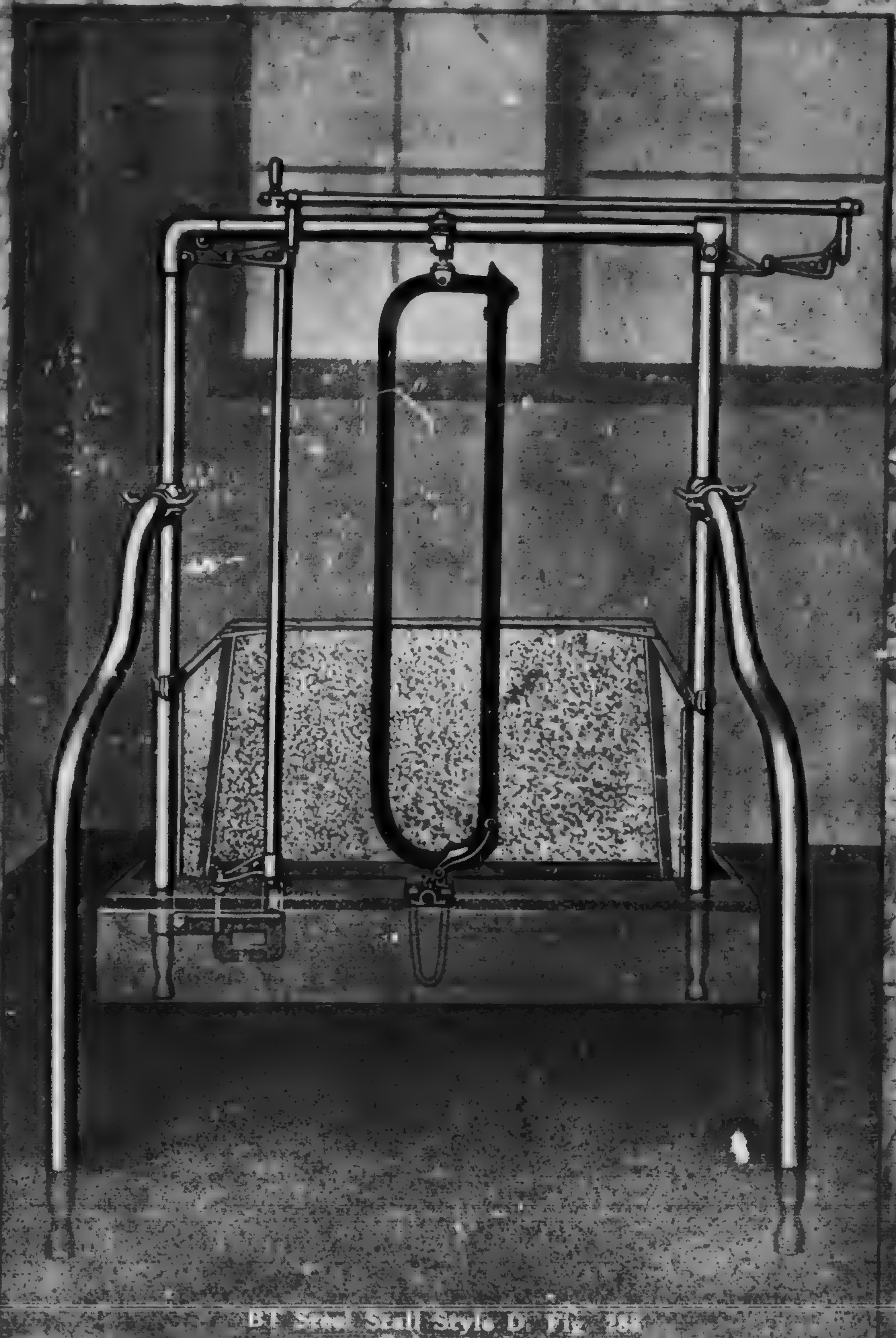
Fronts of mangers are built of No. 20 gauge, best galvanized steel, being proof against rust by moisture, acids in ensilage or acids in other feeds. Divisions are 18 gauge.

The front of the manger in sections of three stalls or less is formed from one sheet, both the front and partitions being strongly reinforced with folded and compressed edges. The front of the manger is bolted to the partitions. Corners of every manger compartment are braced with 1/8 x 1-inch steel. The rigid construction prevents the manger getting wobbly with use.

The front of the manger is bent over to form a 3-inch flange across the top and this prevents feed being tossed out by the cows.

Individual Mangers Prevent Stealing

Easy to [illegible] the Manger [illegible]



BT Steel Stall Style D. Fig. 288
Galvanized

SPECIFICATIONS

BT Complete Stall, Style D—Fig. 288

(Start)

(Patented)

Post and Headrail—Of 1⅞ O.D. solid welded steel tubing.

Partition—1⅞ O.D. solid welded steel tubing, bent to form triple curve, as described on page 115.

Clamps—Post and partitions are furnished complete with BT One-Bolt Stall Clamp (page 112). This is made of malleable iron. It is dust-proof. Malleable clamp attaches manger divisions to stall posts. Corner clamp (Fig. 415, page 112), is furnished to join headrail and post at each end of a row.

Stanchion—BT Steel Stanchion (Fig. 541, page 110), made of high carbon U-bar steel 1¼ inch x 1 5/16 inch x 5/32 inch. Lock is cow-proof, but can be opened with thumb. Malleable lock casting is riveted in place with 5/16 rivet. Hinge is riveted to stanchion with three ⅜ inch rivets. Stanchions have malleable swivel connection at top which allows it to turn completely around. Weight of stanchion, 17 pounds; 3 feet 8 inches long inside. Neck space, 7½ inches.

Cement Clevice—See page 107. It consists of ½ inch steel U-shaped anchor and a malleable iron clevice, provided with three pairs of holes to allow an adjustment of the stanchion 6 inches.

Stanchion Rest—For holding stanchions when open. Every partition is furnished with a stanchion rest. (Fig. 441, page 106.)

Aligning Device—Of malleable iron, immovable on headrail. Permits an adjustment of the stanchion of 8 inches, or, if reversed, 13 inches, (page 118).

Sure Stop Posts—1 5/16 O.D. Steel tubing, shift rail 1 1/16 O.D. solid welded steel tubing (pages 124-127). Clamps for attaching Sure Stop at top and bottom, as on page 124.

Raise and Lower Manger—Manger fronts made of 20 gauge galvanized steel. Divisions and fronts are bolted together and braced by means of 1 inch x ⅛ inch flat steel bars. Divisions are made of 18 gauge galvanized steel reinforced on powerful brake by triple folds. Furnished with adjustable hinge, which allows for variation in width of curb. This manger is 31½ inches wide and 22 inches deep. For description of Raising Windlass for mangers see page 143.

Finish—All stall tubing clamps, bolts and other parts (except stanchions), are galvanized by electric or cold process, and finished in grey enamel paint. Before galvanizing, every piece is thoroughly cleaned to remove scale, rust or other impurities. Stanchion is finished in black japan.

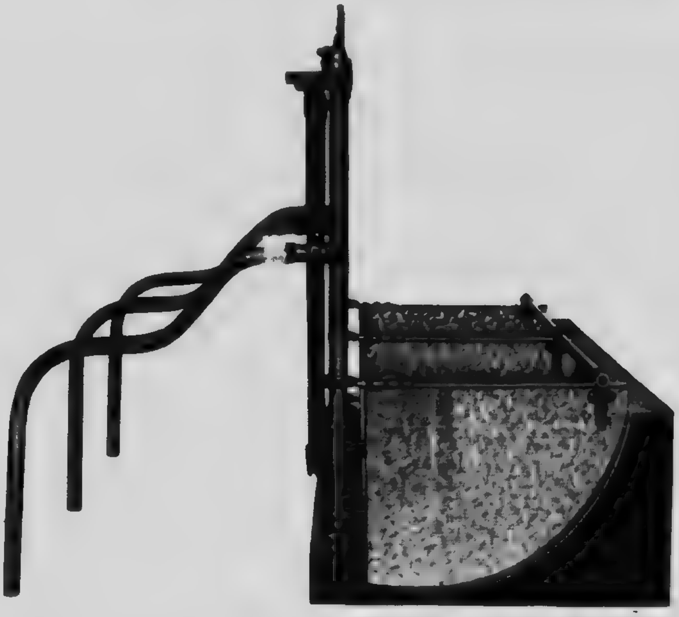
Weight—About 112 pounds per stall.

Finished Ends—To complete a row of stalls finished ends are furnished at extra charge (See page 148.)

Manger Pattern—This is furnished, free, so that manger bottom may be made to suit the shape of mangers.

Stalls are shipped knocked down for convenience in handling. All clamps are put in their proper places before they leave our factory.

GALVANIZED



BT High Manger Divisions

High Cement Mangers, as shown on pages 135 and 138, have most of the advantages of the BT Raise-and-Lower Mangers. The front of the mangers is formed by the cement, and steel divisions are used. There is thus an individual feeding place for each cow, and as the divisions can be raised, the mangers are easy and simple to clean.

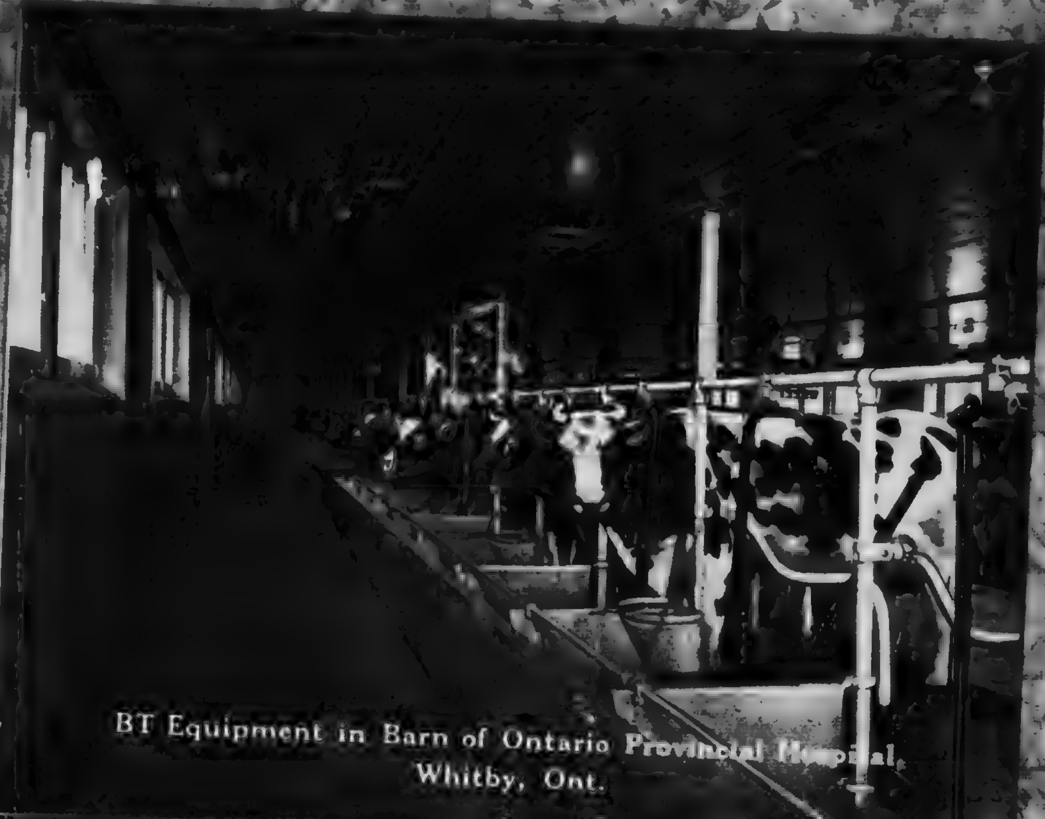
The divisions are connected and are elevated by the same windlass (Fig. 442, page 143), as is used to raise and lower the other mangers.

For watering, water bowls are sold with these divisions, a bowl being placed in every second division. This construction is illustrated on page 138.

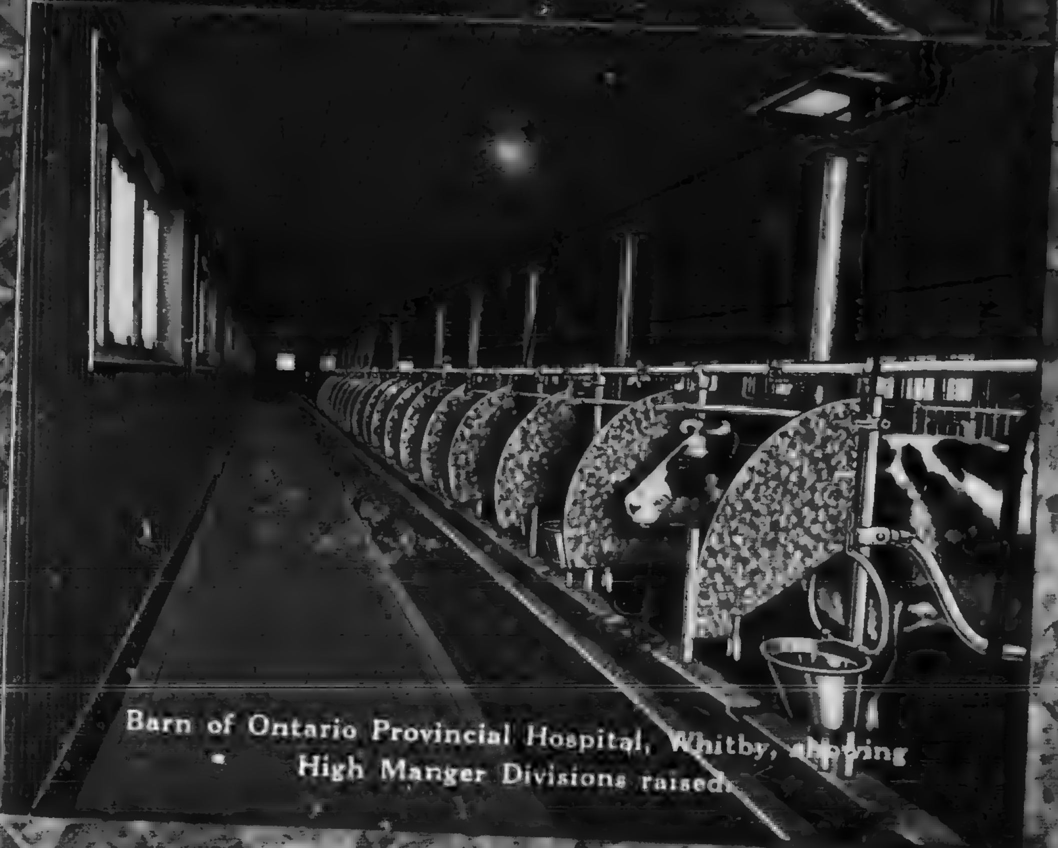
The BT High Manger Divisions are particularly heavy and rigid. They are quite as durable as the other parts of the BT Galvanized Steel Equipment.

They are made of 12-gauge, galvanized steel, which is almost ⅛-inch in thickness. The top edge of each division is bent over at right angles to form a flange 1 inch in width. The perpendicular edge next to the stall post is also reinforced, the material being bent by a powerful brake to form a double thickness ¾-inch in width.

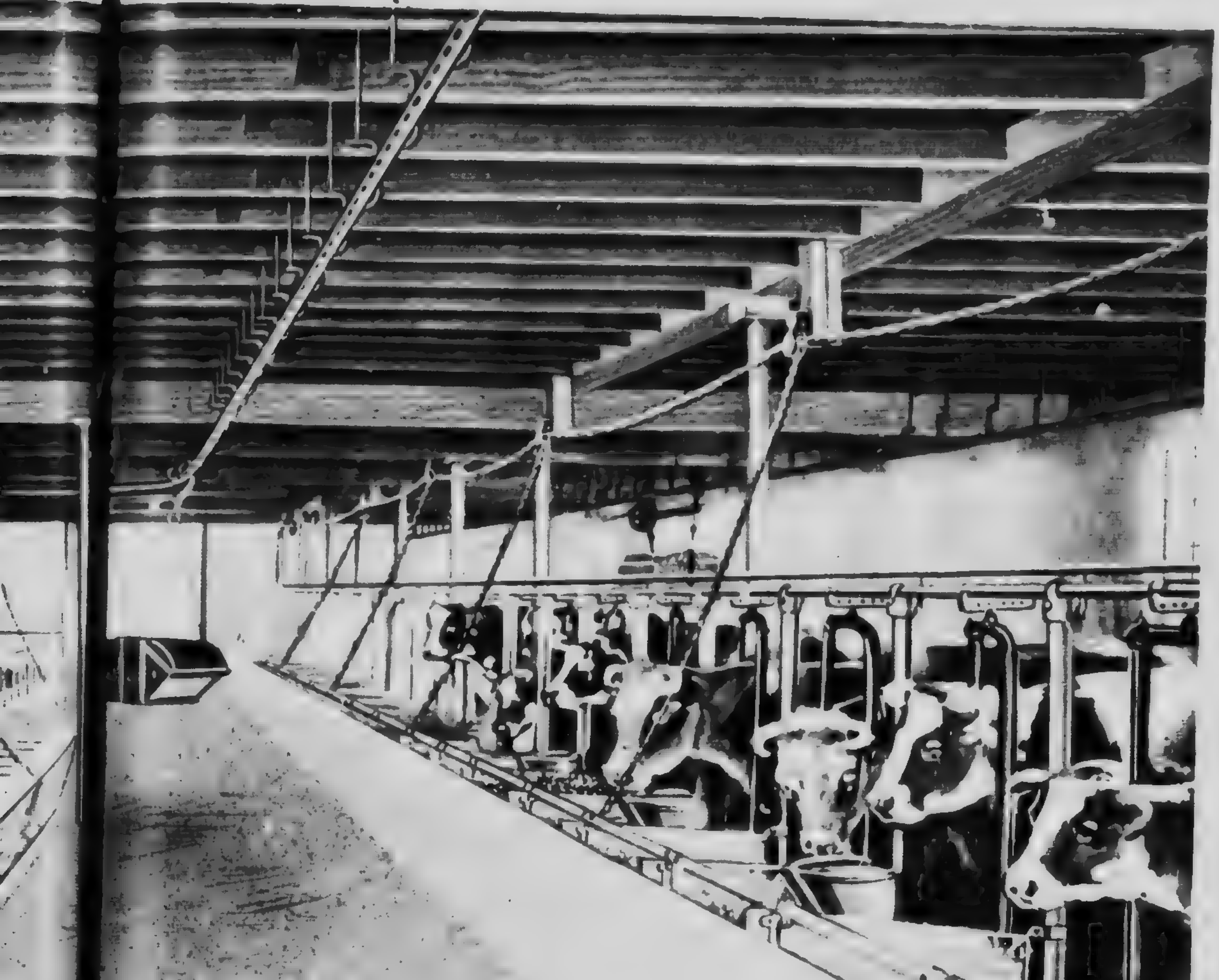
The divisions are connected by galvanized steel tubing clamped to the front of each of them. This not only helps to keep them rigid, but as it is placed on the division at a distance of 3 inches from the cement front, prevents the feed being thrown out of the manger by the cows. The divisions are clamped to the stall posts by means of an adjustable hinge. This allows them to be moved backward or forward 2 inches to provide for any difference in the width of mangers or curbs. That is, if a manger were made a little wider than divisions, the divisions could be adjusted accordingly.

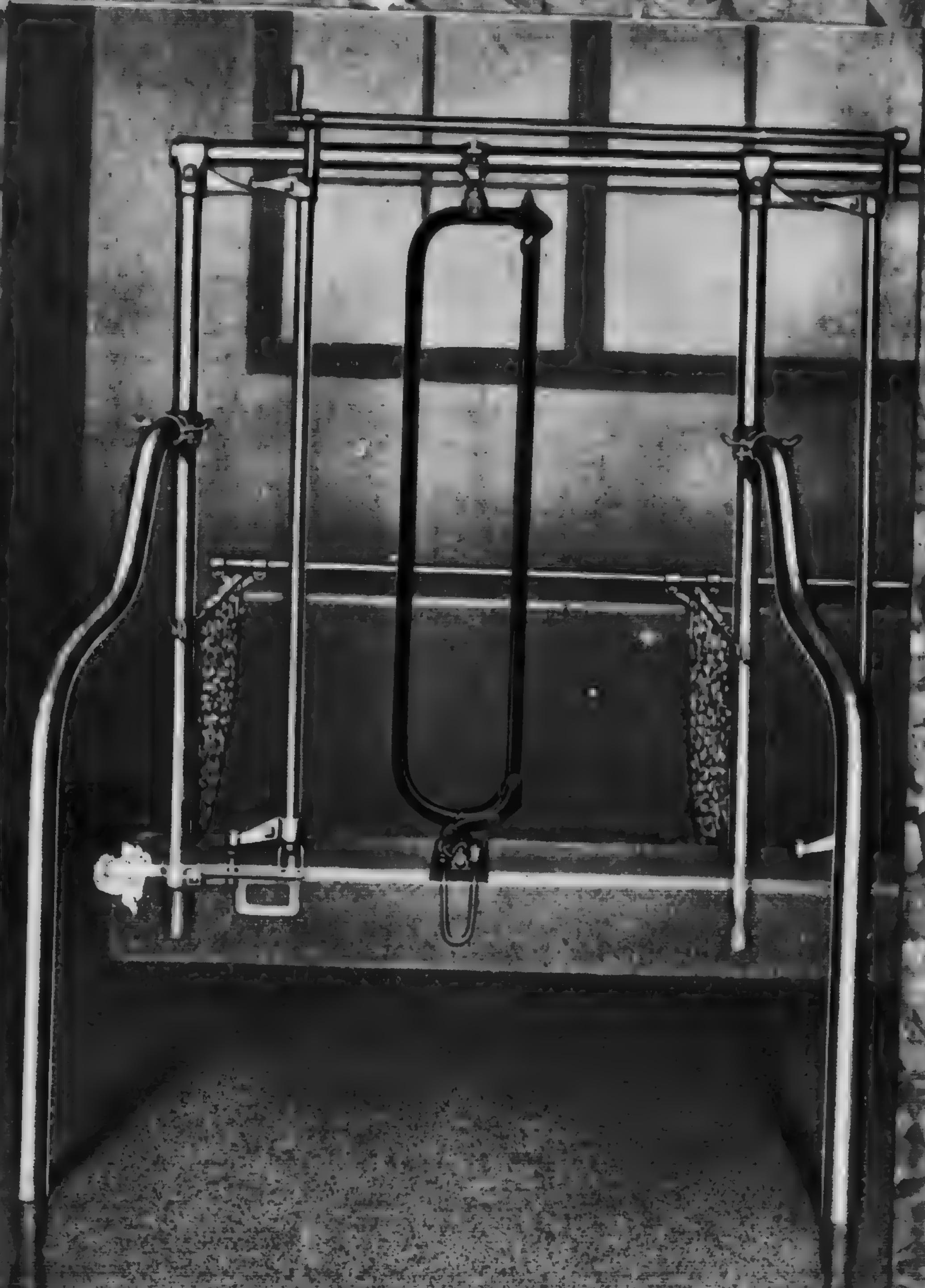


BT Equipment in Barn of Ontario Provincial Hospital,
Whitby, Ont.



Barn of Ontario Provincial Hospital, Whitby, showing
High Manger Divisions raised.





BT Steel Stall Style E, Fig. 213

Galvanized

SPECIFICATIONS

BT Complete Stall, Style E—Fig. 318

(Scratch)

(Patented)

Post and Headrail—Of 1⅞ O.D. solid welded steel tubing.

Partition—1⅞ O.D. solid steel tubing, bent to form triple curve, as described on page 115.

Clamps—Post and partition are furnished complete with BT One-Bolt Stall Clamp, (page 112). This is made of malleable iron. It is dust-proof. Malleable clamp attaches manger division to stall posts. Corner Clamp (Fig. 415, page 112), is furnished to join headrail and post at each end of a row.

Stanchion—BT Steel Stanchion (Fig. 541, page 110), made of high carbon U-bar steel, 1¼ inch x $1\frac{3}{16}$ inch x 5 32 inch. Lock is cow-proof, but can be opened with thumb. Malleable lock casting is riveted in place with $\frac{5}{16}$ rivet. Hinge is riveted to stanchion with three ⅜ inch rivets. Stanchion has malleable swivel connection at top which allows it to turn completely around. Weight of stanchion, 17 pounds; 3 feet 8 inches long inside. Neck space, 7½ inches.

Cement Clevice—See page 107. It consists of ½ inch steel U-shaped anchor and a malleable iron clevice, provided with three pairs of holes to allow an adjustment of the stanchion 6 inches.

Stanchion Rest.—For holding stanchion when open. Every partition is furnished with a stanchion rest. (Fig. 441, page 106.)

Aligning Device—Of malleable iron, immovable on headrail. Permits an adjustment of the stanchion of 8 inches, or, if reversed, 13 inches. (Page 118).

Sure Stop Post—$1\frac{5}{16}$ O.D. steel tubing. Shift rail $1\frac{1}{16}$ O.D. solid welded steel tubing, (page 124). Clamps for attaching sure stop at top and bottom as on page 124.

High Manger Division—12 gauge galvanized steel, reinforced and connected by $1\frac{1}{16}$ O.D. steel tubing. They are 2 feet 6 inches wide and 1 foot, 10½ inches deep at deepest point, are hinged to posts and adjustable 2 inches to suit variations in width of curbs. (Pages 134-135).

Finish—All stall tubing, clamps, bolts and other parts (except stanchions) are galvanized by electric or cold process, and finished in grey enamel paint. Before galvanizing every piece is thoroughly cleaned to remove scale, rust or other impurities. Stanchion is finished in black japan.

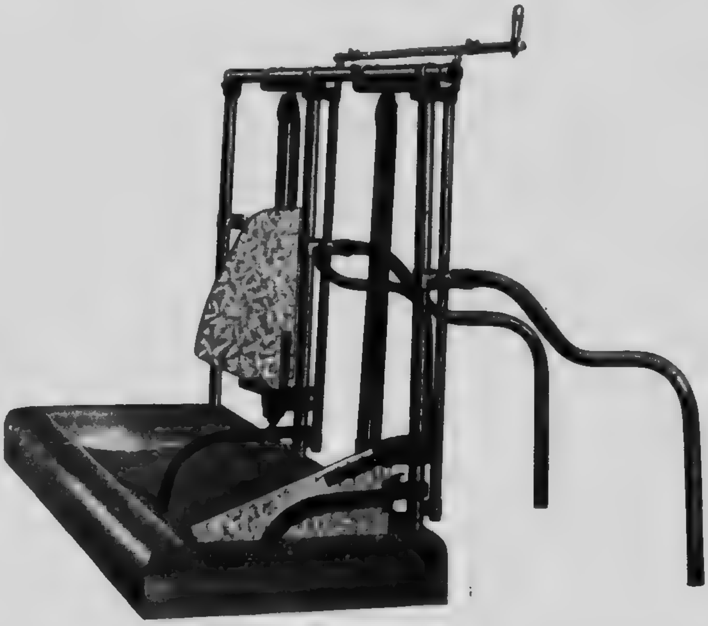
Weight—About 110 pounds per stall.

Finished Ends—To complete a row of stalls, finished ends are furnished at extra charge. See page 148.

Manger Pattern—This is furnshed free, so that mangers may be made to suit the shape of divisions.

Stalls are shipped knocked down for convenience in handling. All clamps are put in their proper places before they leave our factory.

GALVANIZED



BT Low Manger Division—Fig. 417

(Stay)

The BT Low Manger division is designed for use in the barn where the high level feed passages are used—that is, where the passages are on the same level as the top of the curb.

They are less expensive than either type of manger previously described, as no chains are needed.

Instead of lifting the whole row of divisions at a time, each division is lifted separately.

The hinge is ingeniously constructed to serve as a lock which holds the manger division automatically when raised until it is desired to lower it again. The lock is very simple and without any springs to get out of order. You can raise a row of these as quickly as you can walk before them. The division is made to fit a manger 2 feet wide and is so shaped as to make it difficult for the cow to nose out her feed. We will make this division to suit any shape of concrete manger.

When water bowls are used only one of these divisions is required for every two stalls. It is well, in the event of making use of such an arrangement, to pair the fast eating cows and the slow eating cows together.

It is impossible for two fast eaters to reach around the bowls and steal from each other to any extent.

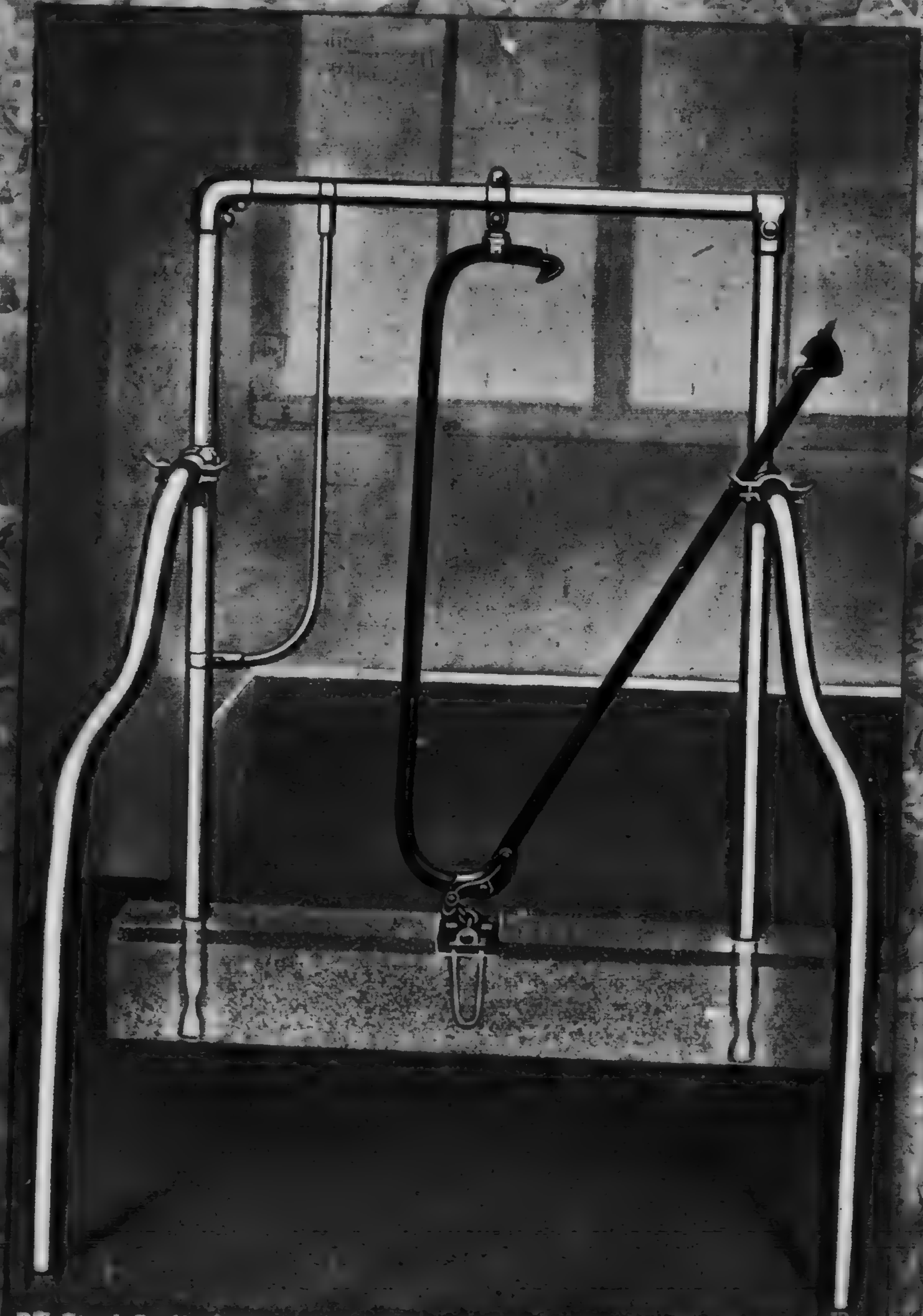
The divisions are made of 12-gauge galvanized steel, and are bent over at the top to make them rigid.

The hinge and lock are malleable iron and are galvanized.

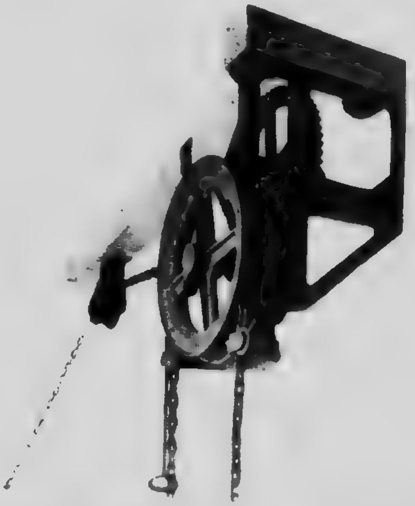
A manger pattern is furnished free of charge so that forms for mangers can be made the same shape as divisions.

Barn of James Dunsmuir, Esq., Hatley Park, Victoria, B.C.

Barn of E. D. [illegible], Chilliwack, B.C.



BT Steel Stall, Style A, Fig. 283, with Fig. 593 Rigid Sure Stop Post, Galvanized



Windlass for Raising the Mangers
Fig. 442

(Swim)

(Patented)

This will raise a whole row of your mangers, easily and quickly. Its greatest advantage is that the whole row of mangers, no matter how long, is raised evenly. No part can sag. This is the danger when mangers are lifted by springs or weights. People are continually catching the row of mangers by one corner to raise them, thus twisting them out of shape.

There are no springs to weaken. When the row of mangers is raised you can depend upon its staying up. When springs are used, or counter balance weights, cows are able to toss the mangers up and get at their neighbor's feed. They cannot lift BT Mangers, as the whole row is in one solid section.

Construction of Manger Windlass

The windlass is attached as in the photo above. The raising chains are run from it through pulleys and from them down to the mangers. The first chain should be placed one manger from the end, and then on every third manger.

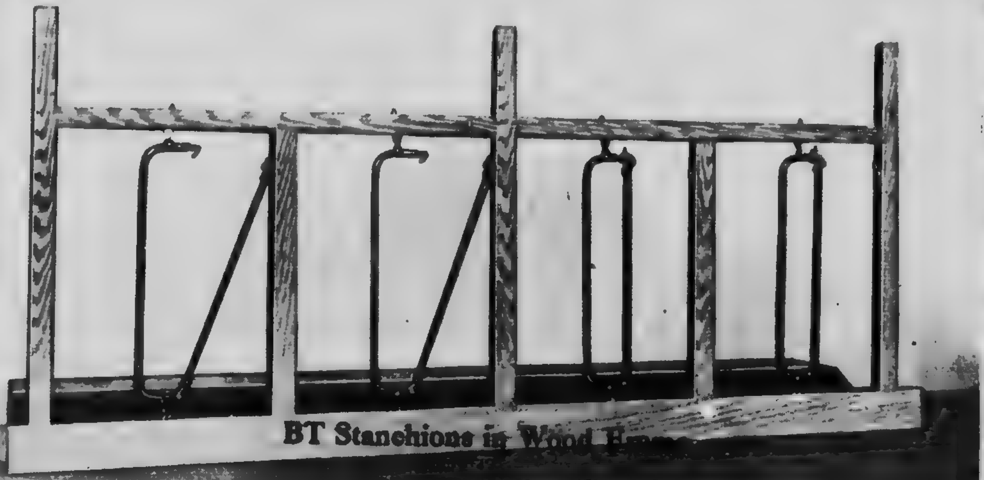
The windlass is controlled by a one-piece, malleable locking brake which is operated by a handle. To lower the row of mangers, just raise this brake and the whole row will drop by its own weight.

Twenty manger divisions can be handled by one windlass. Often the windlass is put in the feed room at the end of the stable. The main chain can be run in the loft, above the stable ceiling.

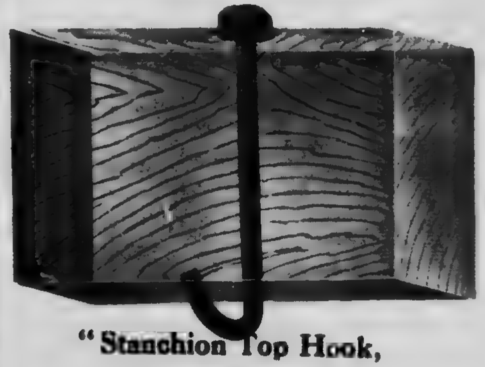
BT Steel Stall with Rigid Sure Stop Post—Fig. 593

(Stiff)

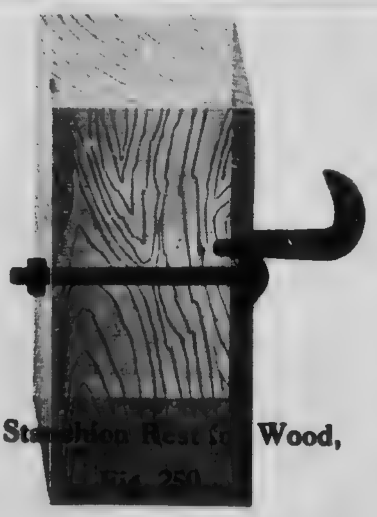
The BT Rigid Sure Stop Post is illustrated on the opposite page. It is a simple and inexpensive form of sure stop. It does not interfere with the freedom of the cow when she is lying down. She can turn her head freely to either side.



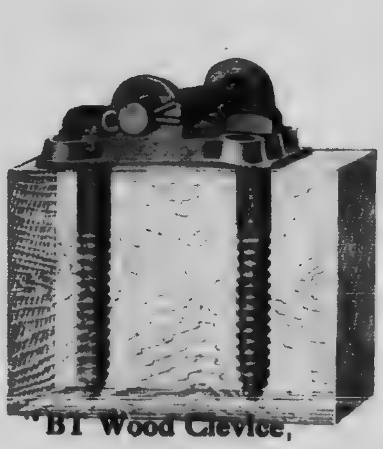
BT Stanchions in Wood Frame



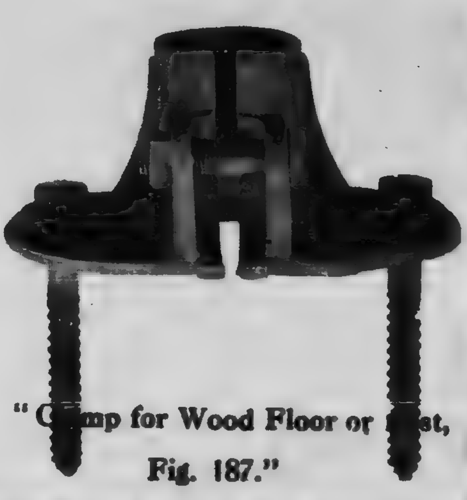
“Stanchion Top Hook,
Fig. 183."



“Stanchion Rest for Wood,
Fig. 250."



“BT Wood Clevice,
Fig. 185."



“Clamp for Wood Floor or Post,
Fig. 187."

BT Fittings for Wood Stalls

If desired, the frame of the stall may be constructed of wood and the BT Stanchions hung in it. No special skill is required to install such a outfit and the layout is cheaper than the old wood stall. The dairymen who wish to remodel their stables and use wood stalls will thus have the full advantage of the cow-comfort swing stanchion. The BT Aligning Device can be used in such stalls, and this, combined with the BT Stanchion, will add much to the cleanliness and comfort of the cows.

The frame for such stalls is usually made of 4 inch x 4 inch material. Every second division should run to the ceiling. The curb should be 7 inches or 8 inches high. The distance from the top of the curb to the bottom of the top rail should be 4 feet 3 inches.

Stanchion Top Hook—Fig. 183

(Stole)

A half-inch hook bolt as illustrated by Fig. 183, page 144, is used to attach the BT Stanchion in wood frame.

Stanchion Rest for Wood Stalls—Fig. 250

(Slim)

A stanchion rest is supplied, which is attached to the upright wood post and receives the moving leg of the stanchion when it is opened. See illustration Fig. 250 on page 144. A 4½-inch bolt is supplied [illegible] securing the stanchion rest in place.

Wood Clevice—Fig. 185

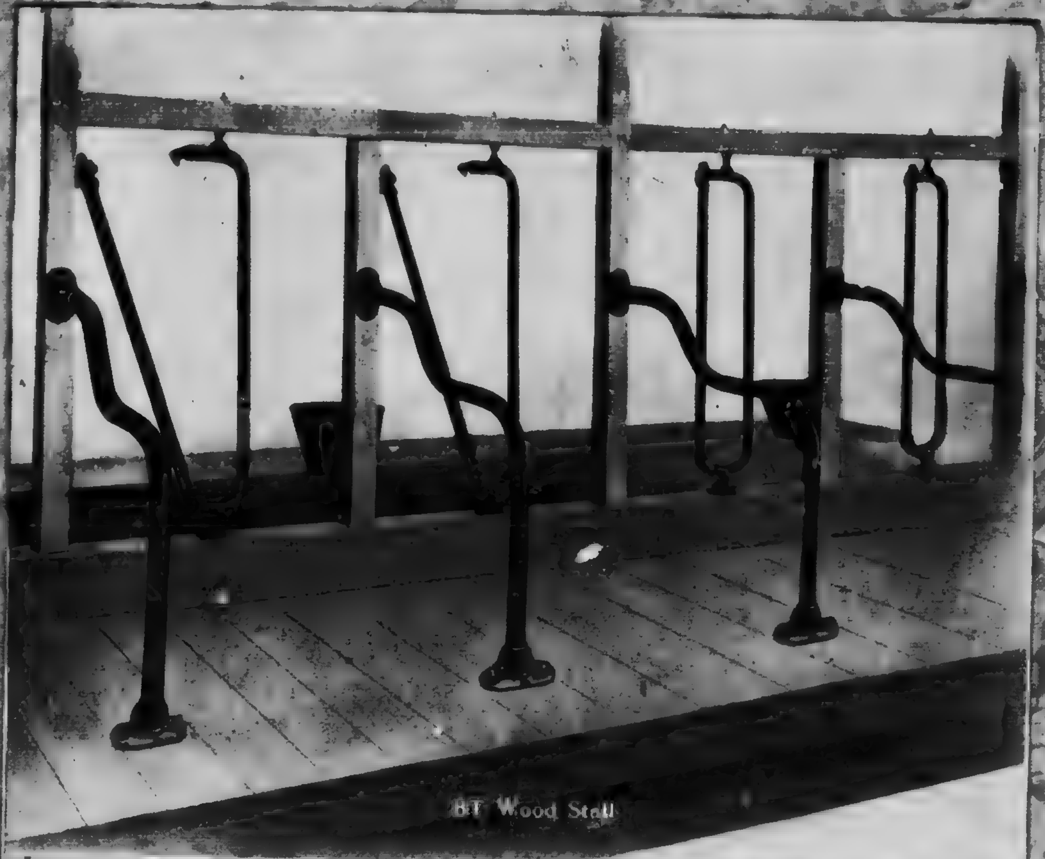
(Slighted)

A wood clevice is used for attaching the stanchion at the bottom. This is illustrated by Fig. 185 on page 144. It is much the same as the regular cement clevice, except that 4-inch lag screws are used to secure it, instead of the U-bolt.

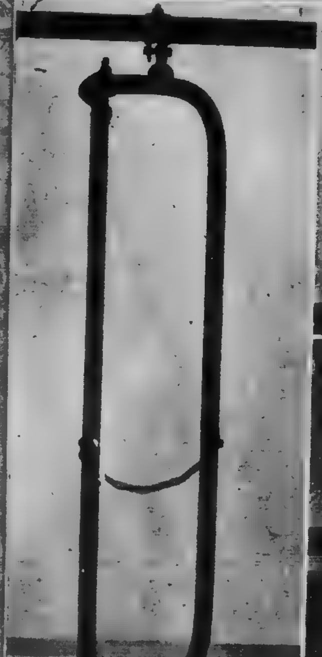
Wood Floor or Post Clamp—Fig. 187

(Staden)

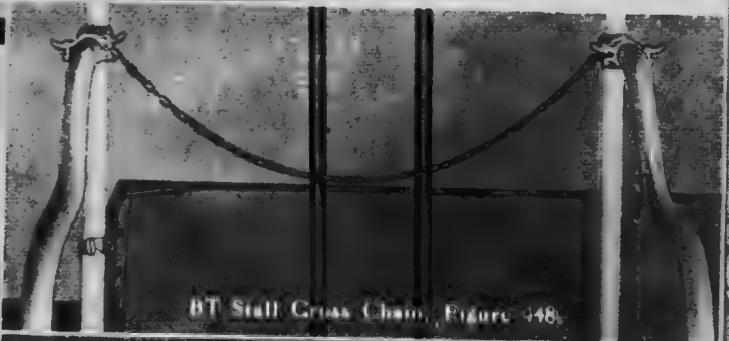
When stall partitions and posts are supplied for wood floors, as shown on the page which follows, special clamps (Fig. 187), are required to secure them to the front and the floor. The lag screws are sent with them. These clamps are galvanized.



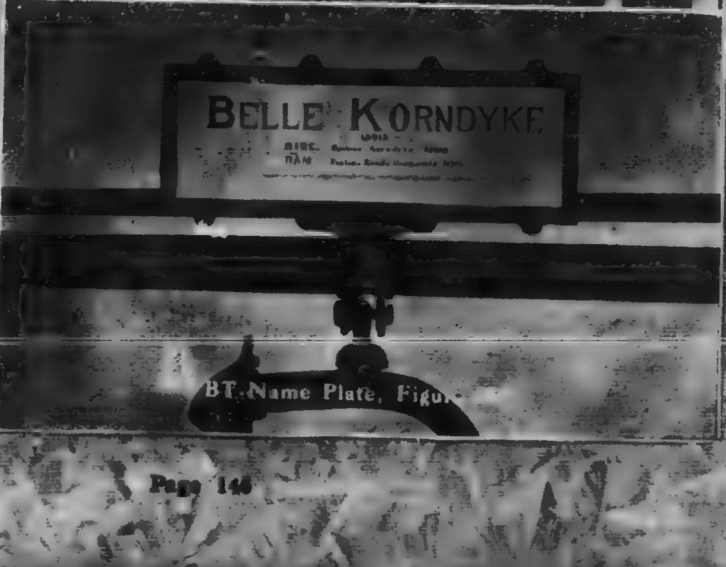
BT Wood Stall



BT Stanchion Cross Chain,
Figure 90



BT Stall Cross Chain, Figure 148



BT Name Plate, Figur

BT Wood Stalls

The top photo on page 146 shows wood stalls fitted with steel partitions. This construction is better than that illustrated and described on pages 144-145, because the BT Triple Curve Partitions are used with it, protecting each cow from her neighbor on either side. They also brace the frame and keep it rigid.

The cost of fitting out a stable in this way is very small. The frame is made of two 2-inch x 4-inch scantling spiked together. The partitions are bolted to this frame by the use of the wood clamp illustrated on page 145.

If, when ordering, we are told the size of material to be used for the upright posts we will send bolts the proper length to attach the partitions. If no information is given we send lag screws.

Water Bowls can be used with this stall, as illustrated by the photo.

SPECIFICATIONS

BT Fittings for Wood Stalls—1 BT Steel Stanchion, 1 Top Hook for same. 1 Cement Clevice or, if curbs are wood, 1 Wood Clevice; 1 BT Stanchion Rest (Fig. 441); 1 BT Triple Curve Partition, made of 1 ⅞ inch solid welded tubing, galvanized; 2 Galvanized Clamps (Fig. 187) for attaching same to wood floor and wood frame.

Aligning Device for Wood Stalls

The BT Aligning Device is furnished for wood stalls when desired, and when a wood frame and supporting rail is used, special bolts are sent with the top clamps. Do not forget that, with aligning devices, you can keep your cows clean.

BT Name Plate—Fig. 257

(Strap)

For the farmer who takes pride in his individual cows, their pedigrees or their records, the BT Name Plate on the BT Stall furnishes a convenient place to display such data. This name plate consists of a frame, composed of two pieces, bolted together to receive and hold a card and two plates of glass. The card, with the name of the cow and the record or instructions for feeding, is placed between the glass plates as shown in the photo. It is easily and quickly attached to either steel stalls or to cow pen or bull pens. It is galvanized.

Overall size of name plate is 6 inches x 14 inches; opening in front is 4 inches by 12¾ inches, and it takes a card 4½ inches x 13½ inches.

BT Stall Cross Chain—Fig. 448

(Suffer)

The BT Cross Chains for stalls are attached to the stanchion rest and are easily hooked across the stall to keep the cow's head up when milking Several of the photos in this catalog illustrate their use. See photo of Robt. Kelly's barn, pages 184-185. Stall cross chains are galvanized.

BT Stanchion Cross Chain—Fig. 90

The BT Stanchion Cross Chains go on the stanchion and serve the same purpose as the stall cross chains. When not in use, they are held by a spring in the groove of the U-bar. The spring ordinarily lies in the groove of the U-bar.

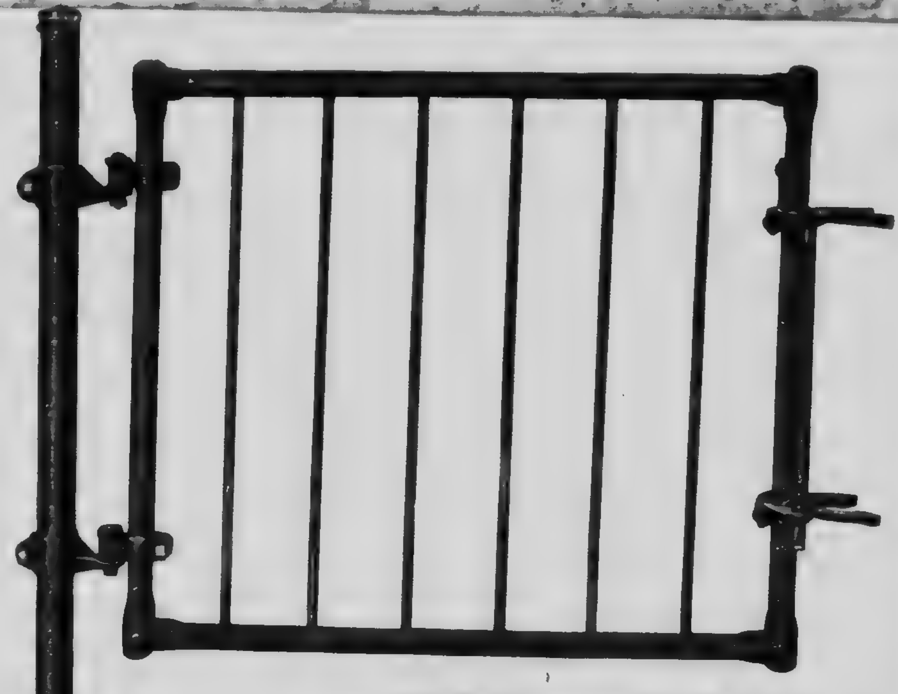


Fig. 303 BT Alley Gate
(Spurn)

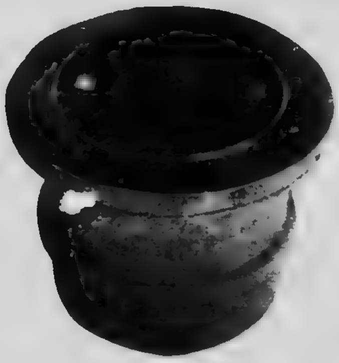


Fig. 561 BT Manger Drain
Pipe Outlet (Sandan)

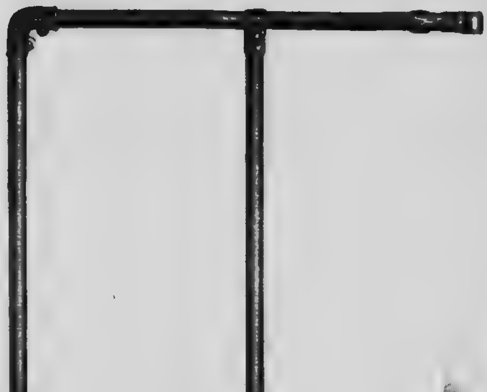


Fig. 443 BT Finished End (Sap)

BT Alley Gate—Fig. 303

(Spurn)

The BT Alley Gates can be used in connection with the finished end and also with our ordinary stall posts. They are extensively used and are very handy to close off any space where the animals are not desired to run. When not in use, they may be swung back entirely out of the way.

The gate is furnished with a splendid lock. It is similar to the lock used in the gates of BT Pens and it will lock on the post without need for a mated casting. See photo on opposite page. It will lock from either side.

The frame is made of 1 ⅝ O.D. full weight, solid welded tubing, galvanized, and finished in battleship grey enamel. Neat corner clamps are used for corners. Upright rods are made of ½-inch steel set on 4½ inch centres.

Size: The standard size of gate is 2 feet 6 inches high and 4 feet wide, but it can be specially made any width desired. The hinges, clamps and lock are supplied complete with the gate.

No posts are furnished. Those in the illustration on page 148 are merely to show how the gate is used.

BT Manger Drain Pipe Outlet—Fig. 561

(Sandan)

The BT Manger Drain Pipe Outlet is a convenience in draining the manger after flushing it out. It is made of grey iron, with ground brass cap to prevent rusting. It is also fitted with a grey iron screen, which may be readily removed for cleaning. It is made for a 4-inch pipe and weighs 9 pounds.

BT Finished End—Fig. 443

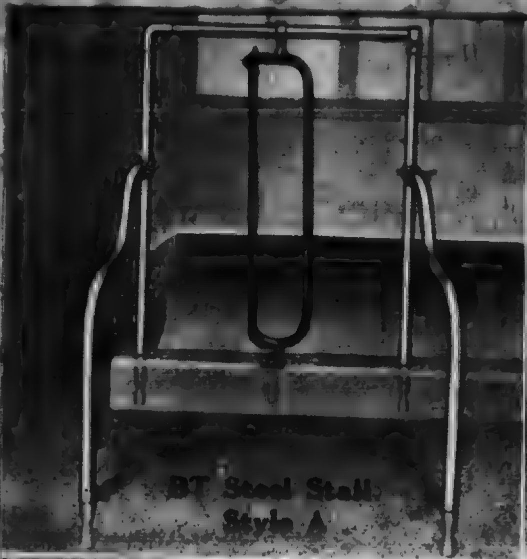
(Sap)

When there is a passage at the end of a row of stalls, we furnish what we call a finished end, instead of the ordinary stall partition. If desired, a gate can be used in connection with these finished ends, so that the space can be closed to prevent the animal from getting into the passage. This is particularly handy when there are calves running with the cows.

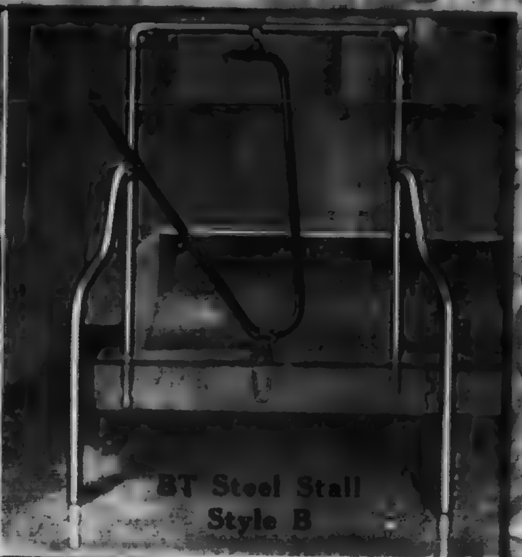
This finished end is made of the full weight, 1 ⅞ solid welded steel tubing, is galvanized, and finished in grey enamel. Observe that the neat corner clamp is used. There are no sharp parts to injure the stock.

This finished end weighs 25 pounds.

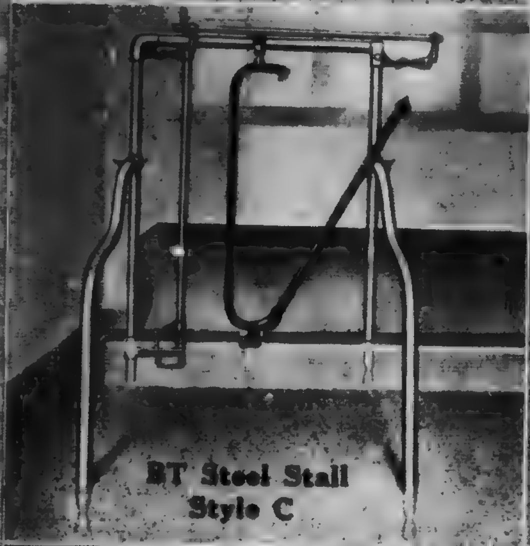
The back of the finished end is 3 feet 10 inches from the front of the stall post. It is usually attached to the stall post, 3 feet 4 inches from the level of the cattle stand.



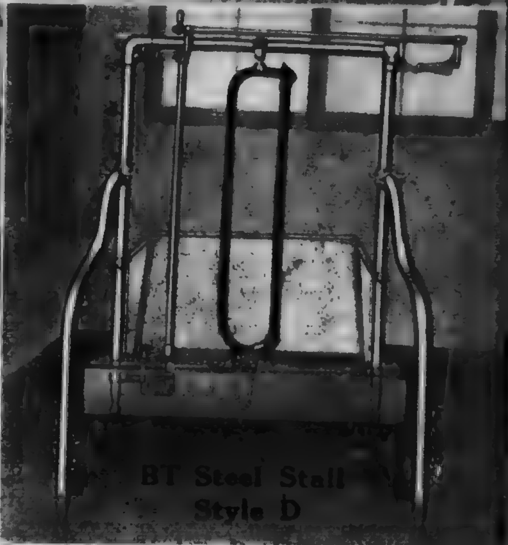
BT Steel Stall
Style A



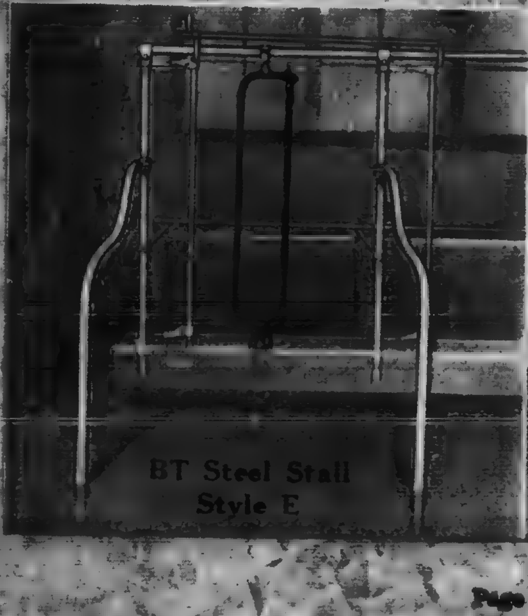
BT Steel Stall
Style B



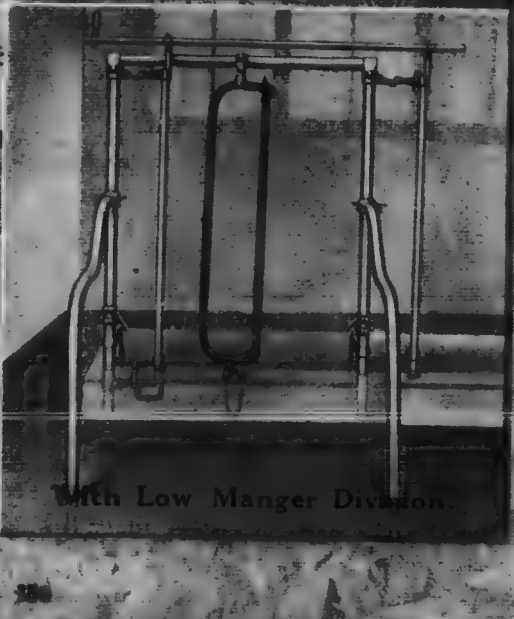
BT Steel Stall
Style C



BT Steel Stall
Style D



BT Steel Stall
Style E



With Low Manger Division.

BT Sanitary Steel Calf Pens

Give your calves a good start and you will have strong, healthy cattle. Profit-making milkers and stockers are both born and made. They are as much the product of a sanitary, well-lighted stable as of good breeding.

The first year is by all means the most important of the cow's life. In that year the foundation is laid for its performance at the milk pail in the years which follow. Like any other baby, the calf is sensitive and must have proper care and sanitary surroundings as well as suitable food, if it is to thrive.

Dirty, muddy, uncomfortable quarters for the calves are favorable to scours. They should be never turned out into muddy lots where they have not a dry place in which to lie. Young calves, up to three or four months, thrive much better in a roomy, clean well-ventilated stable than on pasture.

Danger of Tuberculosis

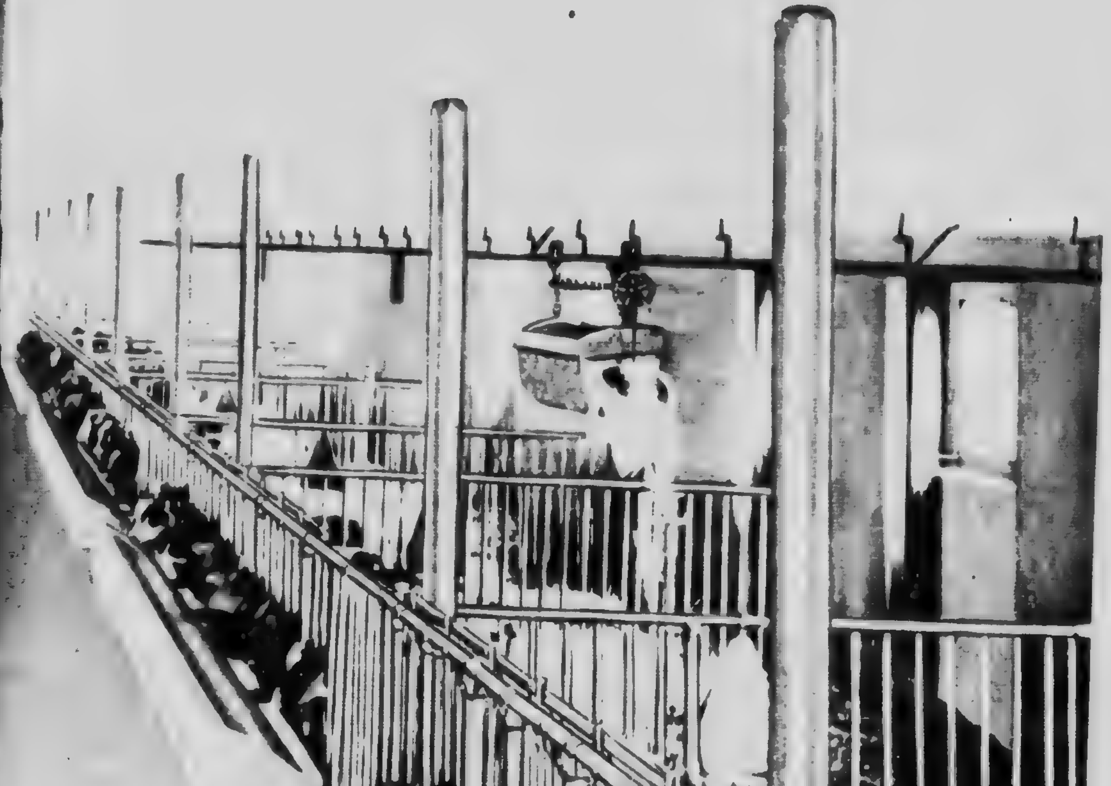
Remember that dark, damp, ill-ventilated stables are breeding places for tuberculosis germs. Healthy calves cannot be raised in a stable which has become thoroughly infected with this disease. But, in comfortable, sunny, dry, sanitary pens, perfectly strong calves can be, and often have been, raised from a dam which has been known to be tubercular.

Especially in wintering calves is care needed. Many calves come through the winter in such bad condition that it takes them most of the next summer to make up for lost time and they do not give much of an account of themselves during the first lactation period.

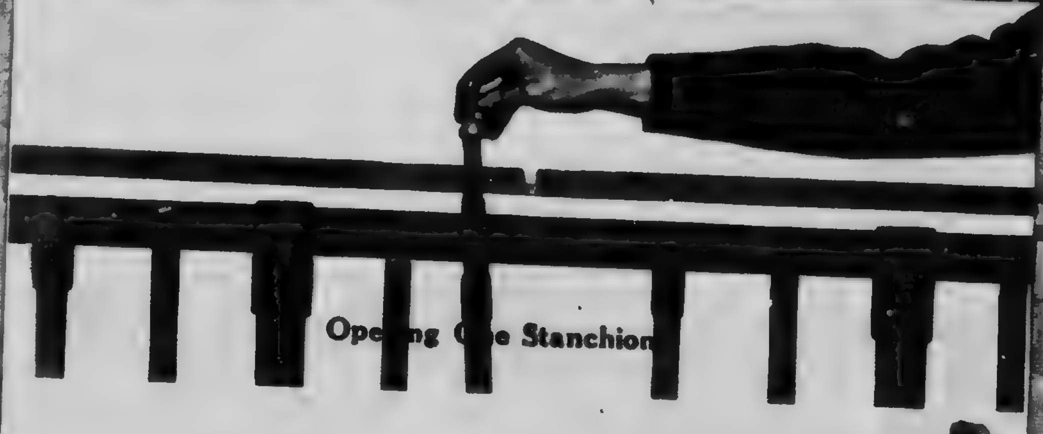
The Work Saved in Feeding

BT Calf Pens are built not only to save a great amount of work in feeding the youngsters, but to make it possible for each to get the proper amount of feed and to overcome the sucking habit.

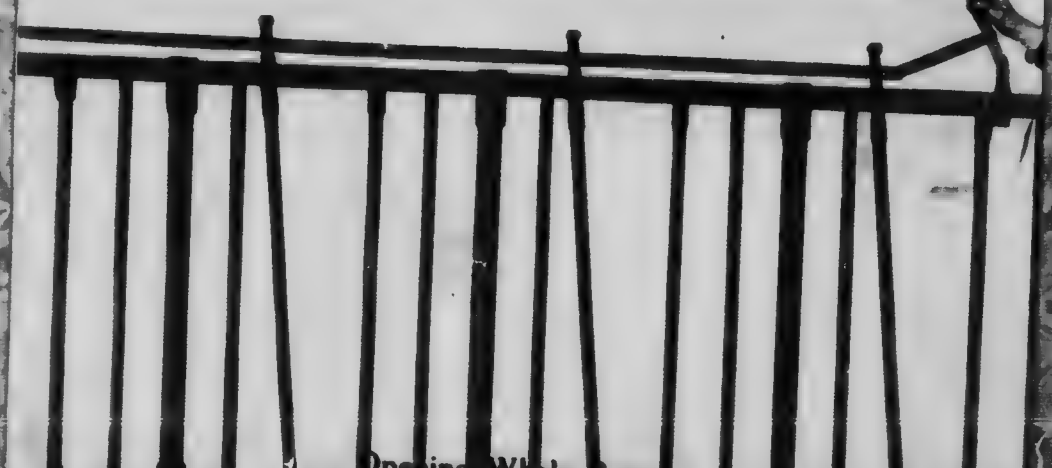
Each calf pen is commonly provided with raise-and-lower mangers. These are much like the raise-and-lower mangers of BT Cow Stalls. They have no bottom as they are intended to rest flat on the cement in front of the pen. Each pen is also provided with a row of stanchions, all of which can be opened and shut at the same time, as they are controlled by a single lever. So, at feeding time, it is the work of but a moment to close the calves in the stanchions. A pail with skim milk, or other feed, can be put in front of each animal, and as each has its own feeding compartment, no bully can gormandize at the expense of his weaker companion.



Calf Pens in Barn of [illegible] Vancouver, B.C.



Opening One Stanchion



Opening Whole Row.

How BT Calf Pens are Furnished

BT Calf Pens are made with spindle panel sides. The rounded surface of the steel offers no surface in which disease germs or lice can lodge. Fresh air and sunlight can flood the calf pens. There are no dark, ill-ventilated corners. Clamps are only used where absolutely necessary. The upright spindles are set firmly in the top and bottom rails, at the factory. There is no need to go along and tighten clamps for every upright. The spindle panels come ready to set in place in the stable.

The lock on the gate is the same excellent lock as that used on all BT Pens. It is more fully described and shown on pages 166 and 167.

The opening for the gate in BT Calf Pens is 3 feet wide from centre to centre of the gate posts. The gate itself, exclusive of lock and hinge, is 2 feet 6 inches wide.

The clamps are made of malleable iron. The design of the clamps is patented and dust proof. Clamps are galvanized and finished in grey enamel paint.

The calf stanchions which form the fronts of BT Calf Pens are a tremendous help in handling the calves. Study the photos on page 154 and you will see how easy it is to tie up a row of calves. If any one of them should fail to get tied with the rest, the one stanchion can be opened and closed for it.

The neck space of the stanchion is adjustable to accommodate the calves as they are growing. The space can be made smaller or larger by adjusting the clamps which hold the upright spindles.

Calf stanchions are a great help in overcoming the sucking habit. This seems to be caused by the milk taste in the mouth of the calves, giving them a desire to suck until this taste is removed. By confining the calves in stanchions until they are fed milk, they may be given dry feed after they are through drinking, to take away the milk taste. Within ten or fifteen minutes the calves will have forgotten their desire to suck. These calf pen stanchions and the adjustable features are patented. The same windlass is used for raising and lowering calf pen mangers as is used with the regular BT Steel Stalls. See page 143.

Ordering BT Calf Pens

In ordering pens, always send sketch showing length and breadth of pens, number of sides required, location of each side, and number of animals to be tied up. Show the side on which the mangers are desired. If the walls of the building are to form a part of the pen, say so, and state whether they are to be of wood, stone, or concrete, so that we can send clamps to suit.

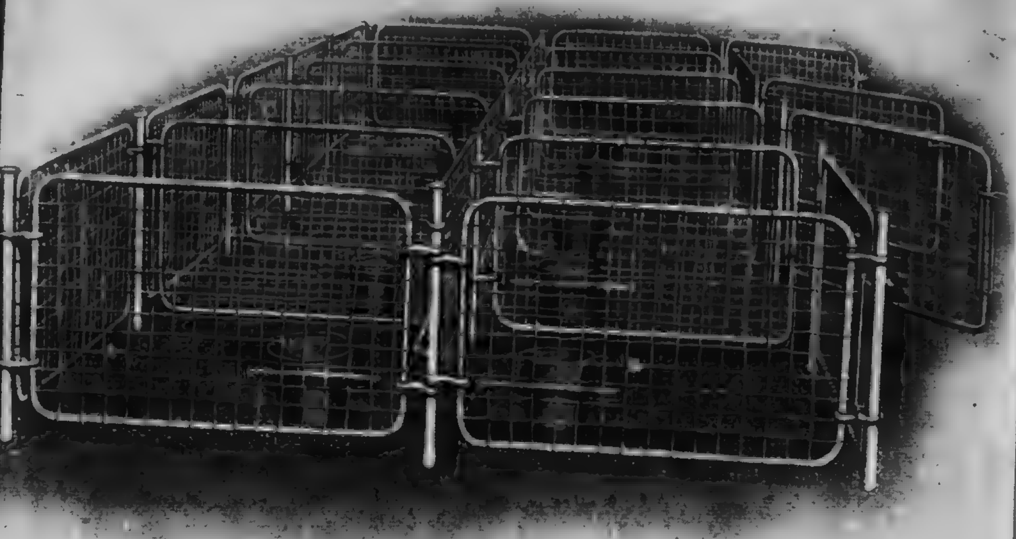


Fig. 539. BT Individual Calf Pens.

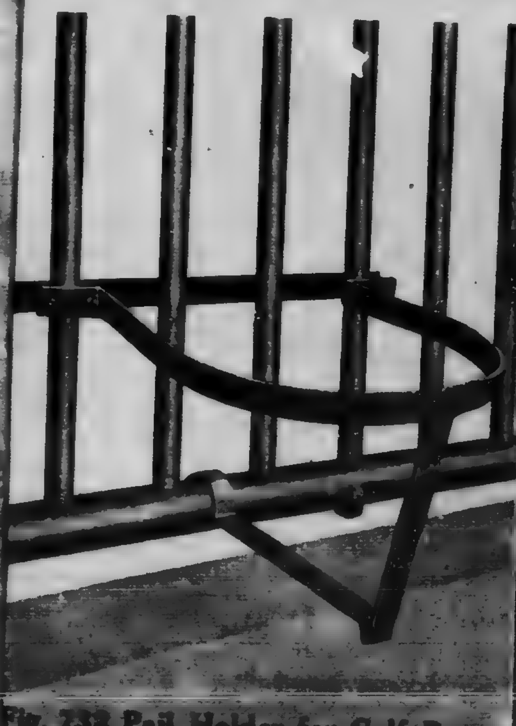


Fig. 732. Pail Holder for Calf Pens.

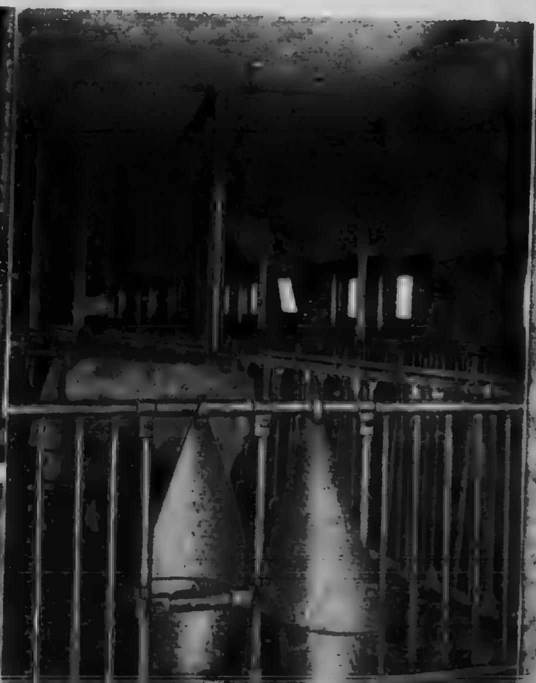


Fig. 186
Galvanized Shield for Water Bowls.

Individual Pens for Calves—Fig. 539

(Spite)

BT Individual Calf Pens are very often needed for young calves. Many breeders find it advisable to keep calves in individual pens, until they are some months old. They are a sure preventive of the sucking habit and for that reason alone, many breeders favor them. Sometimes this section of the stable is heated. Page 156 shows how BT Individual Calf Pens are made. The sides are made of wire panel. One side is provided with hinges and lock to form a gate.

Steel Pail Holders are provided, into which pails can be dropped from outside the pens. These prevent the calves from knocking the pails over and wasting the feed.

Very often the divisions between the pens are made removable so that pens can be enlarged, and two or three made into one, as the calves grow.

These pens are usually made 5 feet x 5 feet.

Specifications

Wire Panels—These are three feet high. The Pens are built without concrete curbs and panels are placed a distance of 4 inches above the floor.

Corner Posts—1¼ inch O.D. full weight, solid welded steel tubing. They are 3 feet 10 inches long, and go down 6 inches in the cement. Tops of posts are closed in by neat caps.

Gate—Made of same material as the panels. Supplied with lock and hinge made in the same way as the BT Alley Gate illustrated and described on pages 148-149.

Clamps—BT patented, dust proof, malleable iron clamps are used.

Finish—All tubing, clamps and parts are galvanized and finished in grey enamel paint. Wire panels are galvanized.

BT Pail Holder for Calf Pens—Fig. 732

(Scand)

We furnish a pail holder. This is for use in individual calf pens. See Fig. 732, page 156. The individual pens are, as a rule, built without mangers, so the pail holder is used for the insertion of a pail of milk at feeding time. It is handy to bend over panel and drop the pail into place, and the calf cannot bunt it over. The pail holder attaches to the panel and to the bottom horizontal of the panel. It is forged from a heavy steel bar and is galvanized. The Pail Holder forms a circle 12 inches wide at the top and is 9 inches deep.

BT Galvanized Shield for Water Bowl—Fig. 186

(Stum)

We supply a galvanized shield to protect the water bowls, when these are used in calf pens, cow pens or bull pens. One bowl is installed in each pen. It is placed in the panel between the pens, as shown in the illustration on page 156, in which you will observe that the calf has to put its head through the panel to drink from the Bowl. No droppings can fall in the bowl when this is used. The shield is made of 20 gauge galvanized steel, and is fastened above the bowl and at either side of it.

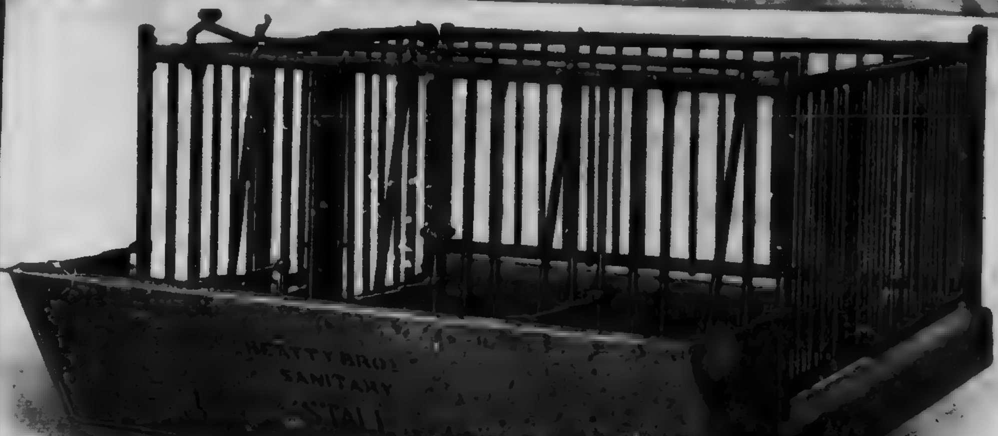
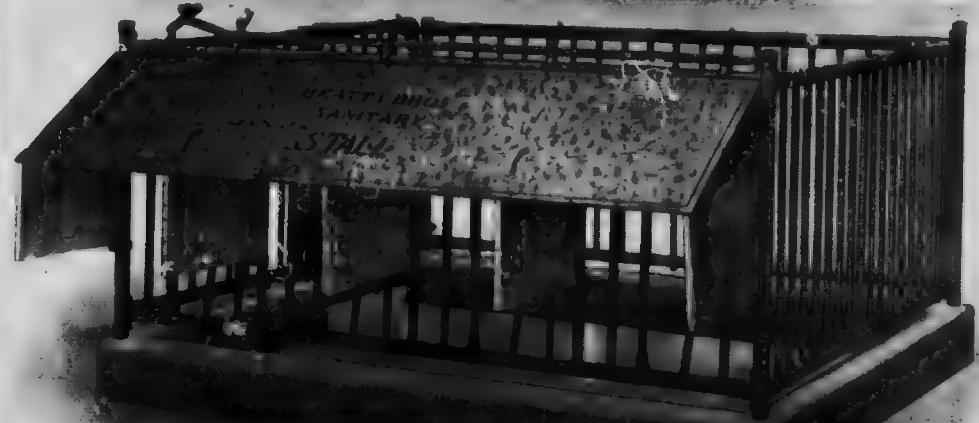
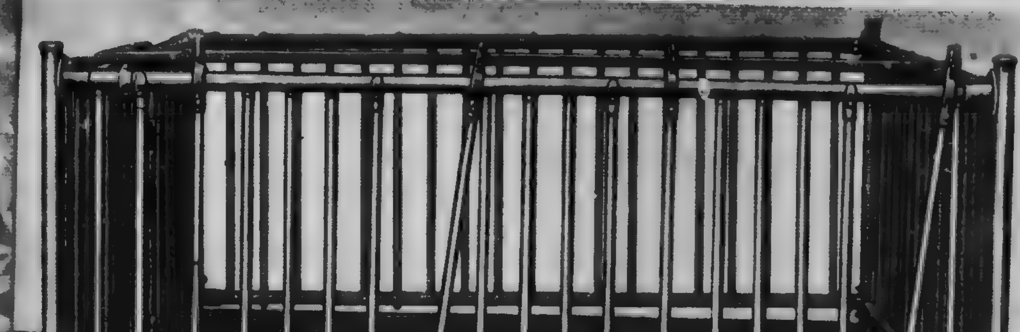


Fig. 713.—No. 2. Galvanized Calf Pen Siding.
Fig. 322.—Galvanized Calf Stanchion Frame.
[illegible] of Calf Pen.



View of Calf Pen with Manger raised.



BT Calf Pen without Manger.

SPECIFICATIONS

BT Sanitary Calf Pens

(Patented)

Fig. 713—With Spindle Panel Sides (No. 2 Siding)

(Scrog)

Stanchion Spindles—Neck space of stanchions is adjustable. Stanchions can be opened and closed one at a time or a whole row at a time. Shift bar for opening stanchions is made of 1¼ x ¼ inch steel and is provided with operating lever and wooden handle. Fixed and adjustable spindles are made of 1 1/16 inch O.D. steel tubing and are 2 feet 8 inches long.

Panel Horizontals—Top and bottom, 1⅞ inch O.D. solid welded steel tubing.

Panel Uprights—Spindles are arranged on 4½ inch centres. They are 1 1/16 inch O.D. steel tubing and are 2 feet 8 inches long.

Corner Posts—1⅞ inch O.D. solid welded, full weight steel tubing, 4 feet 3 inches long. They extend below the floor line 2 inches. The tubing is expanded where it goes into the cement in order to anchor it securely.

Intermediate Posts—1⅞ inch O.D. solid welded, full weight steel tubing, 2 feet 8 inches long. For Panels over 8 feet in length, a stub is sent to go in the cement and support the centre of the panel.

Gate Posts—1⅞ inch O.D. solid welded, full weight steel tubing, 4 feet 7 inches long and extend 8 inches below floor line. Gate posts are connected below the floor line by ½ inch rods and spindle bushings to anchor them securely.

Gate—Gate frame. 1⅞ inch O.D. solid welded steel tubing. Clamps used are the neat corner clamps. (Fig. 415, page 112.) Gate spindles are arranged on 4½ inch centres and are 1 1/16 inch O.D. x 3 feet 2 inches. BT Patented Gate Lock (Fig. 538, page 166), is used with a spring to keep the gate closed. The lock is made of malleable iron and swings both ways.

Clamps—BT patented, dust proof, malleable iron clamps are used.

Mangers Extra—Fig. 292

(Scribe)

Mangers—Raise-and-lower type. Fronts made of 20 gauge galvanized iron, divisions of 18 gauge galvanized iron. They are without bottom and rest flat on the cement. Divisions are reinforced on a powerful brake, which forms a double flange all around them. Fronts are bent to form a flange 2½ inches wide along the top, which reinforces them and keeps feed in. Fronts are also reinforced along the bottom. The partitions are braced to the front by 1 x ⅛ inch steel angle straps. Mangers are 25 inches wide and 20 inches deep.

Finish—All tubing clamps and parts are galvanized and finished in grey enamel paint.

Sizes—Calf pens must be made to order to suit the barn. Stanchions along fronts are spaced from 18 to 30 inches. They are generally set on 22-inch centres.

BT Calf Pens are shipped assembled in panels, so they can be set up in a very short time.

GALVANIZED

Feeding the Calves. Barn of Walker Sons Limited
Walkerville, Ont.

[illegible] Seminaire St. Sulpice, Oka, [illegible]

BT Sanitary Cow Pens

Every stable should have one or more cow pens.

During calving time and whenever there are sick cows in the barn, nothing in the way of equipment is quite so greatly appreciated by the cows and by the owners as the BT Sanitary Steel Cow Pen.

Never should the dairy cow be handled more gently or with more consideration than when with calf—this being a period of greatest importance to the future well-being of the animal and her young.

Nothing could be more cruel then to permit a cow to calve, confined in a stanchion,comfortable as a stanchion may be under ordinary circumstances. Suitable maternity quarters are an absolute essential, even when considered only from the standpoint of profits.

A cow should be kept in a roomy, clean, dry pen for several days before the calf is due, in order that she may accustom herself to her new surroundings.

The isolation and freedom is a great help toward the mother doing well, for in most cases nature will do all that is necessary, if the cow has warm, dry, comfortable quarters.

The BT Cow Pen is also a great convenience, making it possible for the attendant to watch the cow while calving, without the necessity of disturbing or exciting her.

After the calf has been taken away, the isolated quarters and comfortable surroundings aid in keeping the cow quiet and calm so that her milk will sooner be established on a full and even basis.

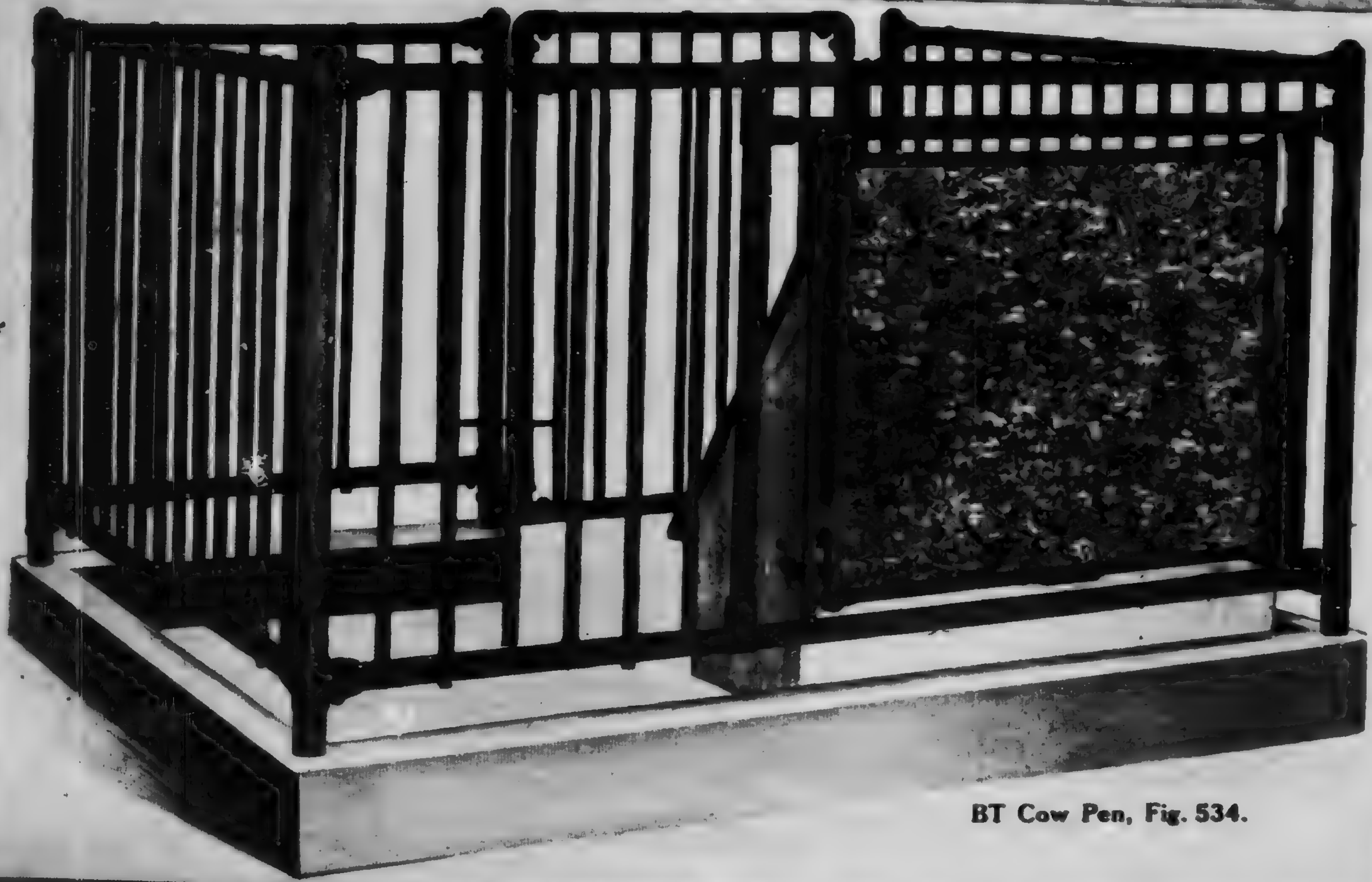
For the Sick Cows

As one writer puts the case: "The question of caring for a sick cow brings out, perhaps more effectively than in any other way, how united are sentiment and profit in dairying.

That a tender, sensitive animal with her unborn offspring should be gently handled and protected from hardship, receives the assent of every humane person. But when this animal is at the same time daily producing an article convertible into dollars and cents, and the amount of this article is increased by kindness and decreased by brutality, it is then that sentiment and profit should unite and say "Be kind to the cow."

Realizing this relation between the health of the cow and her profit to the owner, it seems reasonable to assert that no dairy barn is complete without some provision for isolating a cow. Once she shows any disorder or comes under suspicion in any way, it is necessary to separate her from the herd. The isolation quarters should insure to a sick animal abundant supply of light, air, heat, comfort, with a freedom from noise and disturbance, and should be capable of thorough disinfection after use.

Not only does the BT Cow Pen meet every requirement in providing the maximum of ventilation, light and dryness, but it affords every facility for keeping the pen clean, and may be disinfected at any time. It has the least possible surface to catch the dust.



BT Cow Pen, Fig. 534.

SPECIFICATIONS

BT Cow Pen, No. 3 Siding—Fig. 534

(Strength)
(Patented)

Corner Posts—2⅜ inch O.D. steel tubing. They are 4 feet 11 inches long and extend through the curb 2 inches below the floor line. Corner Posts are fitted with anchors, secured in place, to anchor the post securely in the cement.

Intermediate Posts—1⅞ inch O.D. solid welded, full weight steel tubing. These are made in two sections, one 3 feet 7 inches long, and the other 12 inches long. They extend through the curb and below the floor line a distance of 2 inches. The tubing is expanded where it goes into the cement in order to anchor it securely.

Gate Posts—2⅜ inch O.D. steel tubing. They are 5 feet 4 inches long, and extend below the floor line a distance of 8 inches. They are held solidly in the concrete and connected together by means of bolts, spindles and anchors below the floor line.

Panel Horizontals—Top and bottom, 1⅞ inch O.D. solid welded, full weight steel tubing.

Panel Uprights—1$\frac{1}{16}$ inch O.D. steel tubing 3 feet 6 inches long, set on 5 inch centres. Curbs should be 6 inches wide and 8 inches high. The distance between curb and panel horizontal is 2 inches. The height of pen side from floor is 4 feet 9 inches.

Gate—It consists of a spindle panel. The frame is 1⅞ inch O.D. solid welded, full weight steel tubing. Corners are joined by neat, smooth corner clamps. Uprights are set on 5 inch centres and are made of 1$\frac{1}{16}$ O.D. steel tubing. Gate is 4 feet 4 inches high and is set 4 inches above the floor. Width of gateway from centre to centre of gate posts is 3 feet 6 inches. Gate will swing to either side of gate post. It cannot be opened by any animal. See page 166. The gate itself, exclusive of lock and hinge, is 3 feet wide.

Manger—BT Patented Tilting Manger, page 162. It is constructed of 18 gauge galvanized steel held in a frame of 1$\frac{1}{16}$ inch tubing. Feed box is 4 feet long 20 inches wide and 14 inches deep. It is divided into two compartments, one for grain and the other for bulky feed. A concrete platform should be built under manger 4 feet long, 18 inches wide and 4 inches high.

Clamps—BT Patented, dust-proof, malleable iron clamps.

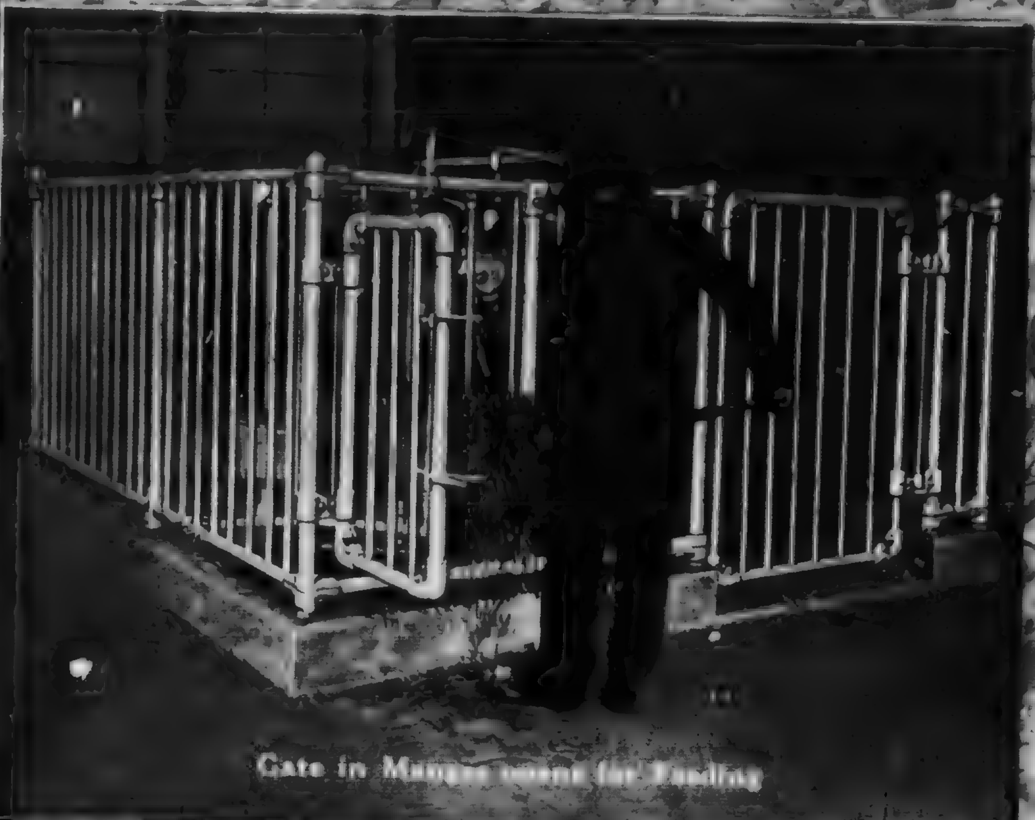
Finish—All tubing, clamps and parts are galvanized and finished in grey enamel paint.

Sizes—BT Cow Pens must be made to order to suit the stable. They are usually 8 x 10 feet. Always send sketch showing length and breadth of pen, number of sides required, and location of each side. If stable walls form part of pen state whether they are wood, stone or cement.

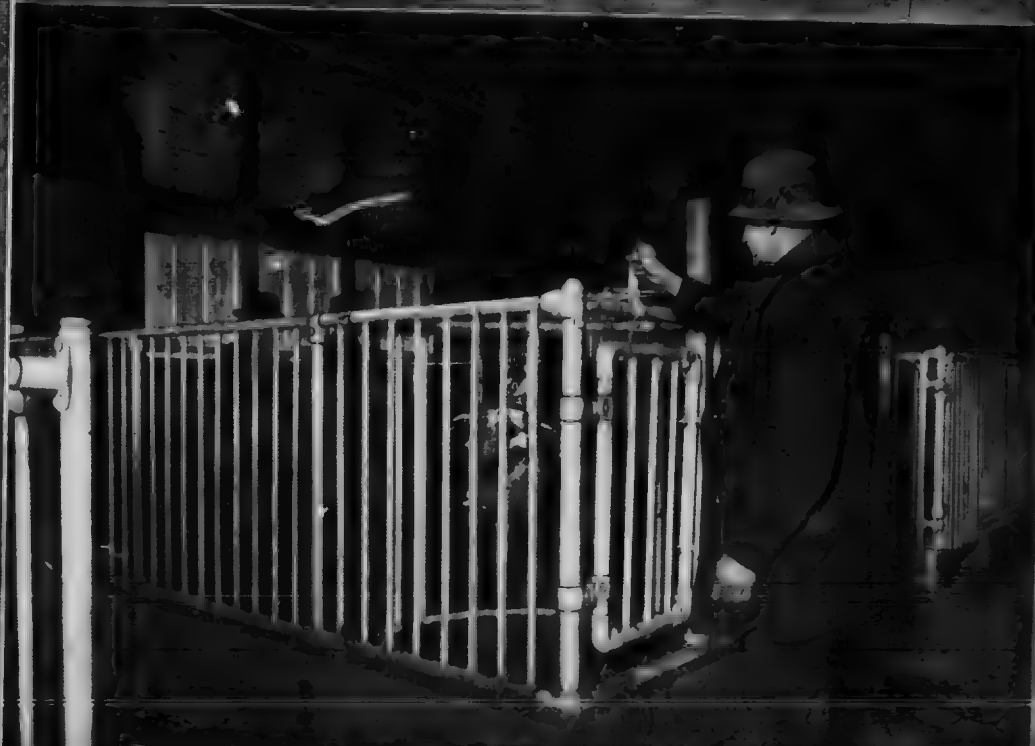
Weight—Per foot 22 pounds.

BT Cow Pens are shipped assembled in panels, so that they can be set up in a very short time.

GALVANIZED



Gate in Manger opens for Feeding



Tie Bull in his stanchion when you wish to enter pen.

BT Sanitary Bull Pen

Bad temper in the bull is the certain result of careless and unkind treatment. It is neither wise nor humane to shut him up in a dark narrow stall, where he can get neither sunshine nor fresh air, and where he is out of sight of the rest of the herd.

The bull is heavy on his feet and it is cruel to confine him in cramped quarters where he has no means of relief. If the animal is to be kept in good condition, he must be given the same consideration as the cows.

The BT Bull Pen will solve these problems. It gives him plenty of room to change his position and move around for exercise. He is far less likely to become dangerously ugly than when crowded into a narrow stall.

He can be turned loose in the BT Bull Pen, to move all around within the sight of the rest of the herd, and can do no harm. You can show him off to visitors without going in the pen. You can feed him without exposing yourself to any danger.

The pen is strong, durable, easy to keep clean and quite as sanitary as the BT Steel Cow Stalls.

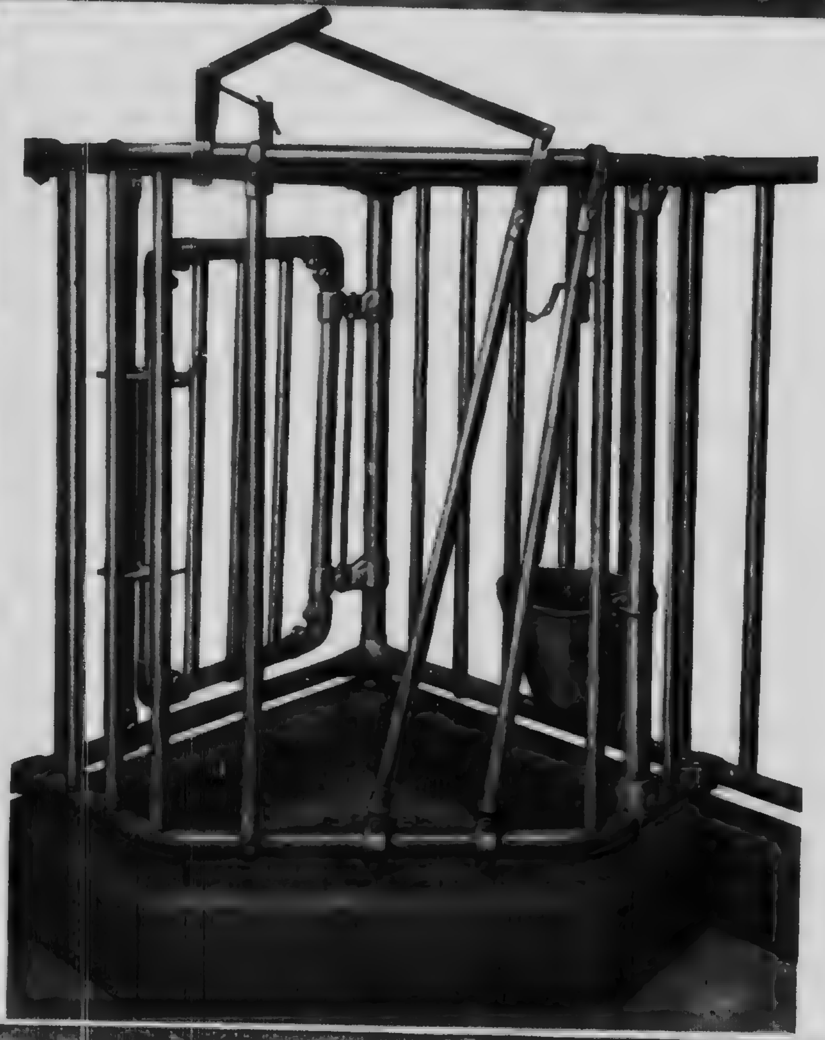
We supply a special manger for BT Bull Pens. The BT Spindle Bull Pen manger is illustrated on page 164. This consists of a concrete manger to hold the feed; a stanchion to hold the bull securely, with the necessary spindle siding and a gate from the feed passage which allows the attendant to put the feed into the manger.

By means of a very ingenious lever the bull stanchion is operated from the feed passage. In this way it is not necessary to go near the bull to tie or untie him.

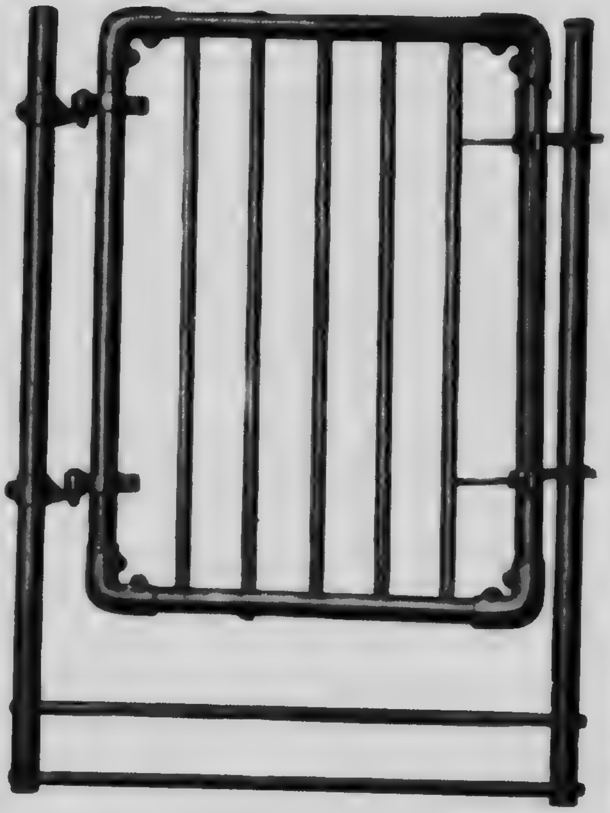
When the bull is securely tied in the stanchion, visitors or prospective buyers can examine him at close quarters without any danger. In every way the BT Spindle Bull Pen Manger saves work and trouble. If you keep a bull you should not be without it.

The spindle bull pen manger always goes in the corner of the pen. It can be used if the wall forms one side of the pen or if both sides are made of steel siding The gate on the BT Bull Pen is constructed on the same principle as that illustrated on page 166. You can slam the gate shut and open it either way, but it cannot be opened by the animal.

A bull staff can be put in the bull's nose ring as he stands tied in the stanchion. The stanchion can then be opened and the bull backed out of the pen, the attendant going through the open stanchion as the bull backs away. The bull can thus be taken out of the pen without any danger to the attendant.



Corner Spindle Manger for BT Bull Pens



Gate for BT Pens

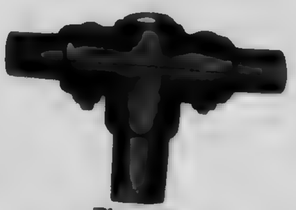


Fig. 411
2-way Box Stall Clamp

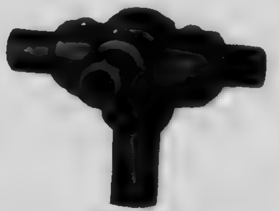


Fig. 407
3-way Box Stall Clamp

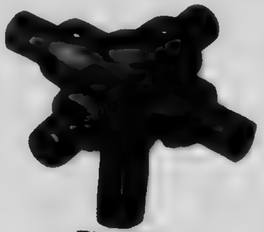


Fig. 410
4-Way Box Stall Clamp

Sanitary Clamps on the Pens

Note the dust proof fittings used with BT [illegible] ly a crack to collect dirt. Clamps are used [illegible] where used, are tight fitting and neat in appearance. [illegible] and 411 are three of the neat clamps used in box stall [illegible] half inch bolt goes through the clamp and through each [illegible] These big bolts can be tightened quickly, and they [illegible] without danger of threads stripping.

Note the neat cap over each clamp to close the ends of the tough tubing.

The "Safety" Gate

The BT Gate is illustrated on page 166. You can swing this gate shut from either side.

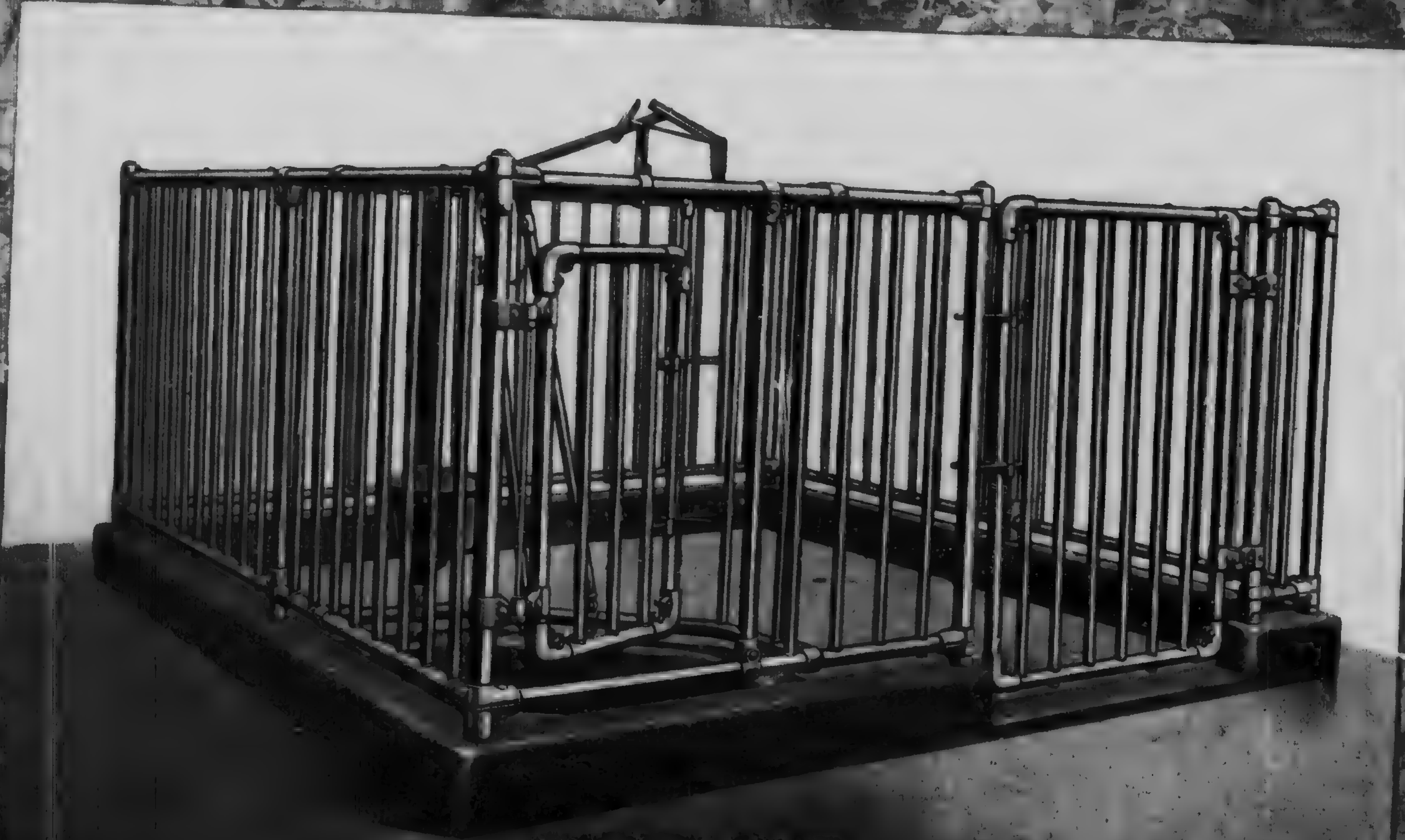
The gate is rigidly held at both top and bottom, for there are really two locks, one near the top and one near the bottom, connected by bolts. The lock revolves and fastens on the gate post adjacent to the gate. Mated castings are not required or used. You will notice that there is no casting on the gate post but the lock fastens on the post itself. This makes it simple to adjust the gate in height.

A safety latch springs in, after the lock has engaged with the post, so no animal can lift it.

This gate lock is constructed of malleable iron, and galvanized. It is patented.

BT Equipment in Barn

Hospital, Whitby, Ont.



BT Bull Pens Fig. 294.

SPECIFICATIONS

BT Bull Pen, No. 4 Siding—Fig. 294

(**Scroll**)

(**Patented**)

Corner Posts—2⅜ inch O.D. full weight steel tubing. They are 5 feet 3 inches long, extending right through the curb and below the floor line a distance of 2 inches. Corner Posts are fitted with steel pins, secured in place, to hold the post securely below the floor line.

Intermediate Posts—1⅞ inch O.D. solid welded, full weight steel tubing. These are made in two sections, one 3 feet 11 inches high, and the other 1 foot long. They extend through the curb and below the floor line a distance of 2 inches. The steel is expanded where it goes into the cement, in order to anchor it securely.

Gate Posts—2⅜ inch O.D. steel tubing. They are 5 feet 9 inches long and extend below the floor line a distance of 8 inches. They are held solidly in the concrete and connected together by means of bolts, spindles and anchors below the floor line.

Panel Horizontals, Top and Bottom—1⅞ inch O.D. solid welded, full weight steel tubing.

Panel Uprights—1$\frac{5}{16}$ O.D. steel spindles and set on 6 inch centres. A 6 inch x 8 inch concrete curb is used with this pen. The distance between curb and panel horizontal is 2 inches. As curb is 8 inches high and panel 3 feet 11 inches high, the height of a pen side is 5 feet 1 inch.

Gate—It consists of a spindle panel. The frame is 1⅞ inch O.D. solid welded, full weight steel tubing. Corners are joined by neat, smooth, corner clamps. Uprights are set on 6 inch centres and are made of 1$\frac{5}{16}$ O.D. steel tubing. Gate is 4 feet 9 inches high from top to bottom and is set 4 inches above the floor. Width of gateway from centre to centre of gate posts is 4 feet. Gate will swing to either side of gate post. It will slam shut. It cannot be opened by any animal. See page 166.

Manger—The BT Corner Manger, illustrated on page 164, is provided with a stanchion to hold the bull securely. Mounted on a heavy framework. Upper and lower horizontal rails are 1⅞ O.D. solid welded, full weight, steel tubing. Stanchion moving bars are made of 1$\frac{5}{16}$ steel tubing. Entrance to the manger from the feed passage is provided by means of a gate, 2 feet wide, opening into the manger from the feed passage. This is constructed in the same manner as the pen gate described above. By means of an ingenious lock the stanchion is opened and closed from the feed passage.

Clamps—BT patented, dust-proof, malleable iron clamps.

Finish—All tubing, clamps, and parts are galvanized and finished in grey enamel paint.

Sizes—BT Bull Pens must be made to order to suit the stable. They are usually about 10 feet x 10 feet. Always send sketch showing length and breadth of pen, number of sides required and location of each side. State whether wall is wood, stone or concrete, if it forms one side of the pen, so that we may send fittings to suit.

Weight—Per foot 25 pounds.

BT Bull Pens are shipped assembled in panels so they can be set up in a very short time.

GALVANIZED

The [illegible] was to feed.

Tied in [illegible] Pens each feeder gets his proper share of feed.

BT Steer Pens

It is not only Dairy cattle that need sanitary surroundings. It is quite as important for steers to be kept in sanitary, healthy, well lighted and well ventilated quarters as it is for other kinds of stock.

It is just as necessary for steers to be fed, so that the big bully will not steal from its neighbor, as it is for cows.

Anything that will save time and cut down the labor in caring for the stock will be just as much of an advantage to the owner, whether he keeps steers or milk cows.

BT Steer Pens are designed with these points in mind The open steel construction allows sunlight and fresh air to flood every corner of the pens. There are no cracks or corners where lice or vermin can collect and breed.

When feeding time comes, each steer is securely tied. The big bully cannot hustle the smaller animals around, steal their feed and make them miserable. There is no risk of a valuable steer being hurt in the scramble. Each animal gets its proper ration and can make the best of all the feed it gets. There is no waste of feed with BT Steer Pens. The old-fashioned trough or rack is extremely wasteful. Pretty nearly as much feed is pulled down and trodden under foot as is eaten by the animals. Feed is too valuable in these days to waste it on the stable floor—it should be in the bodies of the steers making weight and profits.

It is the work of only a moment to tie a row of steers in BT Steer Stanchions. One lever operates a whole row. This saves a great deal of time and confusion. The animals cannot waste their feed. They get just what they are given and each steer makes the most of it.

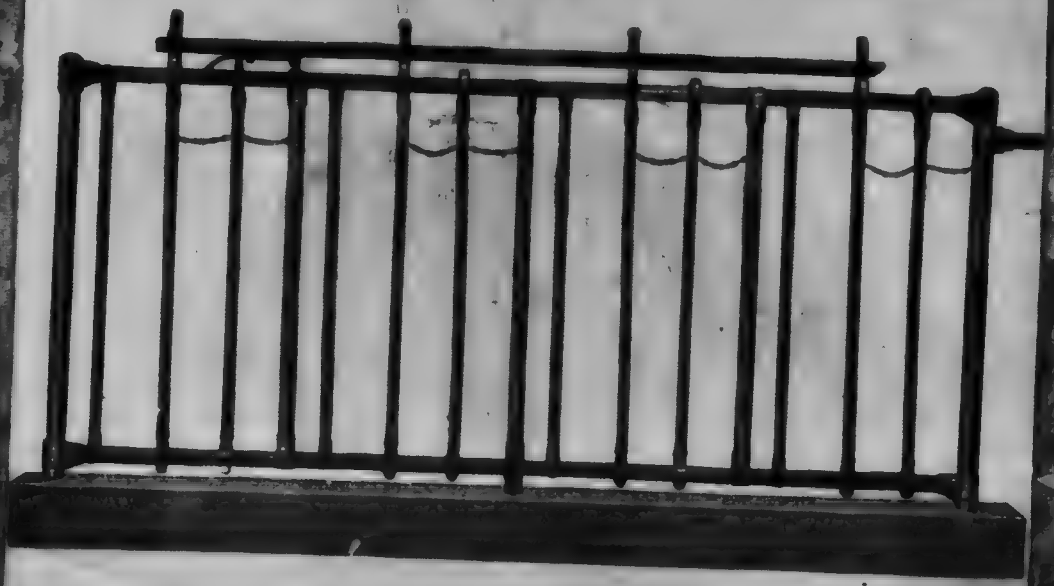
Contrast this with the old-fashioned pen.

It is dark and gloomy, usually it is hard to get in to clean it, and manure is inches thick on the floor. Wooden racks hold the feed and at feeding time there is a scramble on the part of the steers. Some eat too much, some do not eat enough. Feeding is a dirty, awkward business. Feed is wasted and the stock do not do nearly as well as they might.

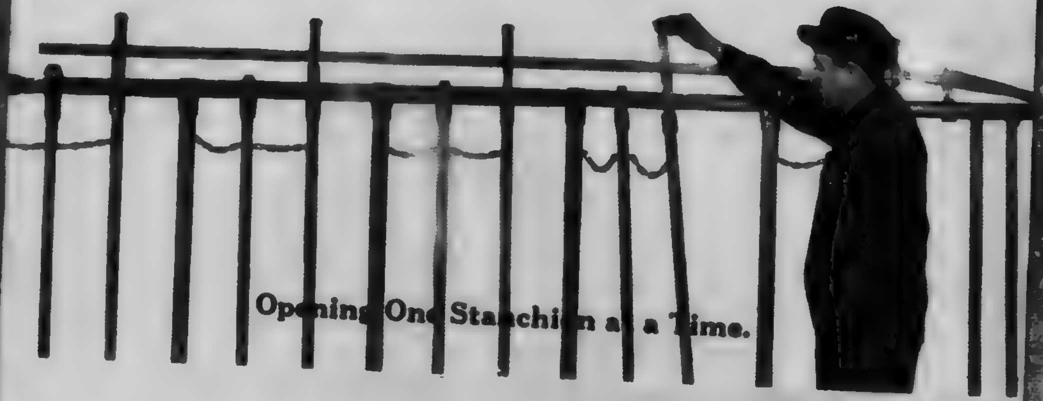
There is always a market for first class beef cattle and there always will be. Poorly finished animals are always plentiful and always poorly priced. It is only good business to make the most of the steers. It is then that they yield profits.

Complete specifications for BT Steer Pens are given on page 175. The material used is heavy and strong throughout. Corner posts are nearly 2½ inches in diameter. Spindles are $1\frac{5}{16}$ inches in diameter. Note that the lever does not project beyond the end of stanchion panel. Therefore its operation is not interfered with by a wall at either end. Each stanchion may be opened or closed independently. The stanchion latch is patented. The stanchion has two moving bars, both adjustable, so that the neck space can be made to suit the animal.

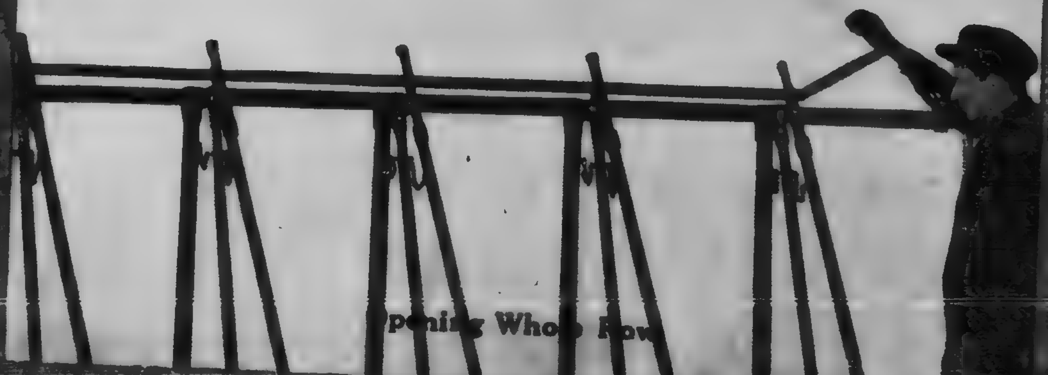
Any type of manger can be used with these fronts when mangers are desired. We recommend the BT Raise-and-Lower Manger described and illustrated on page 158.



BT Steer Pen Front Fig 542.



Opening One Stanchion at a Time.



Opening Whole Row.

SPECIFICATIONS FOR BT STEER PENS

Corner Posts—$2\frac{3}{8}$ O.D. full weight, solid welded steel tubing. They extend through the curb and into the cement 2 inches. Held solidly in place by $\frac{1}{2}$ inch anchors, riveted in the tubing.

Fronts—These are a height of 5 feet 1 inch above the floor level. Intermediate posts, made of $1\frac{7}{8}$ steel tubing, are set on 30 inch to 36 inch centres. Stanchion moving bars and upright spindles are $1\frac{1}{16}$ O.D. steel tubing.

Horizontal Rails—Made of $1\frac{7}{8}$ O.D. steel tubing.

Shift Rail—$1\frac{3}{4} \times \frac{3}{8}$ inch steel.

Spindle Sides—Top and bottom horizontal rails are made of $1\frac{7}{8}$ O.D. steel tubing. Spindles are set on 5 inch centres, and are made of $1\frac{1}{16}$ O.D. steel tubing. Steer Pen sides are 4 feet 9 inches above the floor level.

Gates—Constructed the same as the gate for the BT Bull Pen. (See page 167.) The opening for the gate is 3 feet 6 inches from centre to centre of the gate posts. The gate itself, exclusive of lock and hinge, is 3 feet wide.

Clamps—BT patented, dust-proof malleable clamps are used throughout as with other BT Pens.

Finish—Galvanized and finished in grey enamel paint.

These Pens are Easy to Erect

All BT Pens are built to suit the stable. They are assembled in panels in the factory, with clamps for joining in their proper places. You can join the panels in a few moments with a monkey wrench.

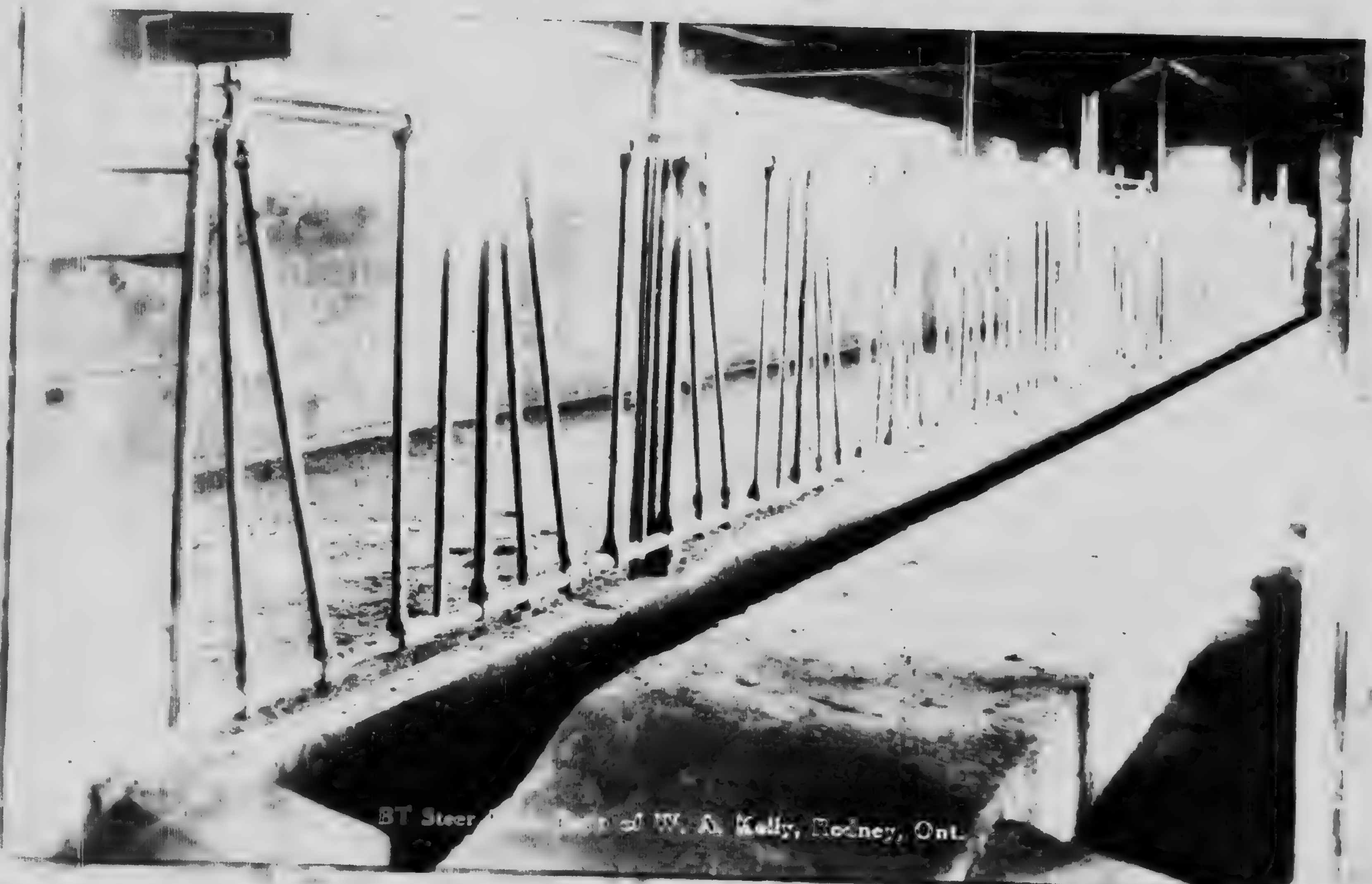
You don't have to turn your barn into a machine shop when you are erecting BT Equipment. It comes ready made, and ready to set up.

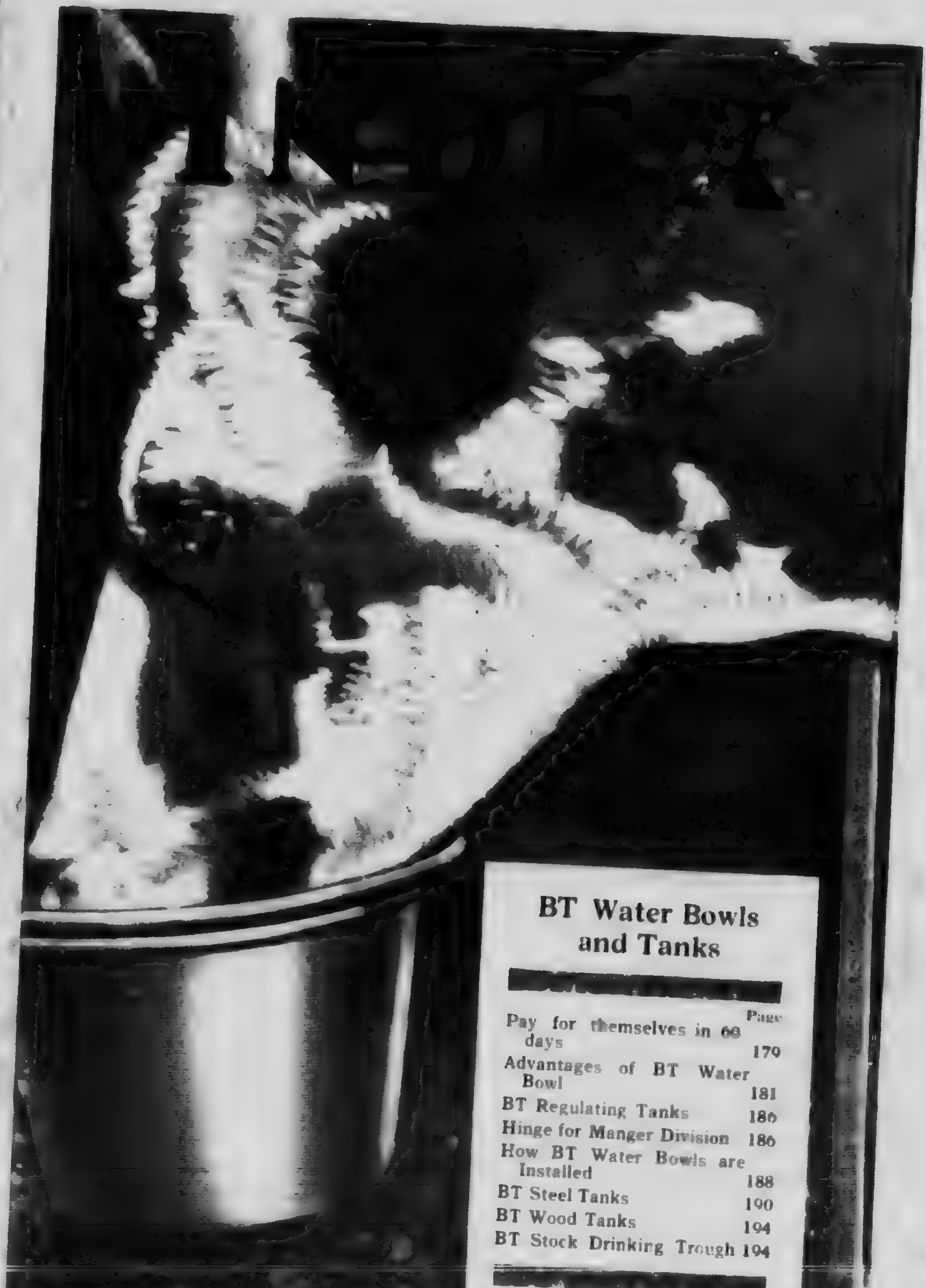
It is not necessary to set each upright in the cement as must be done with some styles of pens. Only the corner posts go down into the concrete, except in the case of great spans, when an intermediate post is also embedded.

BT Pens are Galvanized

The importance of having steel equipment galvanized and protecting it adequately from the attacks of stable acids and moisture has been dwelt upon with such stress in other parts of this book that we need not impress the point here.

It is just as important to have your pens galvanized as your cow stalls. For the sake of the appearance of your stable and the durability and cleanliness of the equipment, insist on having pens galvanized.


BT Steer
[illegible] of W. A. Kelly, Rodney, Ont.



BT Water Bowls and Tanks

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Pay for themselves in 60 days	179
Advantages of BT Water Bowl	181
BT Regulating Tanks	186
Hinge for Manger Division	186
How BT Water Bowls are Installed	188
BT Steel Tanks	190
BT Wood Tanks	194
BT Stock Drinking Trough	194

Barn of Seminaire St. Sulpice, Oka, Que. [illegible]
automatically water the Cows.

Water Bowls Pay for Themselves in Sixty Days

Do you know of any other investment you can make which will pay you back the money invested in two months? A water bowl outfit will do just that. Moreover it will go on paying back the money invested every two months. It will pay for itself six times every year. No one could expect to find a better investment than that.

So confident are we that BT Water Bowls will increase milk production that we will guarantee that they will pay for themselves in two months. That is to say, the increase in milk will pay for the water bowls in sixty days, if previously to their installation the cows had been turned out into the cold to water. The reason for the greatly increased milk yield when water bowls are installed is easily explained.

To get a maximum production of milk you must have plenty of fresh water constantly before the cows. This is easy to understand when you consider that milk is 87 per cent. water.

The composition of milk is as follows:—

Water	87%	Proteid	3½%
Sugar	5%	Fat and mineral matter	4½%

That is, in every gallon of milk there are 3 quarts and a pint of water.

A cow actually consumes much more water than goes into the milk. In addition to all the cow requires for milk production, she must have large quantities for the other requirements of her body. For instance, every breath she exhales carries out a large percentage of water.

If we are to get large yields of milk, the cow must be given not only plenty of feed but plenty of water. There is a limit beyond which the average cow will not go in consuming grain, silage or roughage unless she can quench her thirst or cool her mouth. One of the secrets of forcing live stock is to get them to drink heavily of good water at regular intervals, and the cow working at high pressure is no exception to this rule.

Cows Stand Shivering in the Cold

We have seen that a cow must consume enormous quantities of water if she is to pay a profit. The point is that cows simply will not and cannot drink enough water for maximum production when you drive them out to the tank through the cold. They stand shivering in the cold, their backs humped up. Perhaps a few push in and take a few quick sips. Some of the cows go back to the barn without touching the water. You cannot force them to drink their fill of the ice cold water. The most they will take is barely enough to slack their thirst.

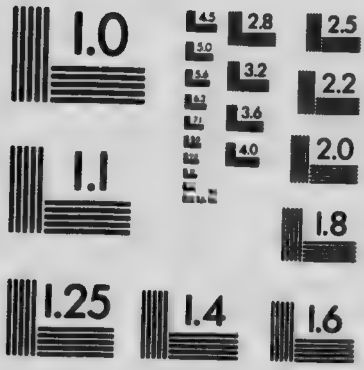
Farmers who have driven cows through the cold to drink, when they put in a water bowl outfit find that the production increased so much that it was like the cows coming in fresh.

Water Bowls Improve Cow's Health

Careless watering is the cause of many a veterinary bill. If an animal is driven out into the cold to shiver, she gets chilled inside and out. Feed stays in her stomach until it reaches a temperature of about 90 degrees before it digests. After being driven out and thoroughly chilled, it is often an hour or more before digestion commences. This does the cow

MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc
1653 East Main Street
Rochester, New York 14609 USA
(716) 482 – 0300 – Phone
(716) 288 – 5989 – Fax

harm and often causes acute indigestion. If, on the other hand, the cow is so thirsty that she gulps down a quantity of icy water, she is suddenly chilled and many troubles have a chance to develop—bloat and the more dangerous forms of indigestion among them.

Water Bowls Prevent Disease

Water bowls are much safer than watering cows in either a continuous trough or manger, especially where any contagious troubles may prevail in the herd. Contagious diseases also communicate when the cows drink out of a tank in the barn yard. When cows drink out of a trough in front of the stalls, the cows at the end of the row are drinking the spittel of all the others and readily take any disease from a sick animal.

Do not allow cows to drink from muddy streams and filthy barn yard puddles. They load up their systems with the impure water. They contaminate the water which they are required to drink. This contamination finds its way to the udder. An infection is thus started which may spread to every cow in the herd. Many a cow has a quarter of an udder diseased because of the contamination in the drinking water. The loss by reduction of milk flow, the lowered value of the animal, the lessened value of the milk and the veterinary bills would pay for a water bowl outfit.

Water Bowls Improve Quality of Milk

Impure water is liable to give the milk a bad taste. Ropy milk is often due to contact with mud or muddy water By providing lots of fresh, clean water for the cows, BT Water Bowls overcome these difficulties.

Water Bowls Save Work

Even if water bowls did not pay in increased milk yield, they will save quite sufficient labour to warrant placing them in the barn in preference to watering in the manger or in the continuous water trough. The time when cows appreciate water most is after consuming their dry forage. Water bowls automatically provide the water for the cows at this time and save the chore of going back in the evening to sweep out the mangers and give fresh water to the cows.

BT Water Bowls save you the work of digging paths for the cattle, driving them out to water, thawing out the pump and pumping the tank full.

If you Keep Feeders and Stockers

Nelson Lindsay, near Malton, Ont., had an experience with water bowls that shows what they will do for beef stock. He put water bowls in his barn about a year ago. He had eleven steers. Only one bowl is needed for every two animals so he bought five bowls. Thus he had the water in front of ten of the steers, and the eleventh steer was watered with a pail twice a day. But, when Spring came, the steer which had no bowl to drink from was thin compared to the others. Mr. Lindsay says there was about 100 pounds difference, and the fourth year he bought a water bowl for the odd stall. When a bunch of feeders are driven out into the cold they get chilled to the bone. The body heat lost in this way is recovered by eating more. Keep them inside and save the feed, especially when feed is so high in price. Here is proof of this statement from a practical breeder of beef cattle:—

Dear Sirs:

Angus, Ont., June 21, 1919.

I have had twenty of your best bowls for three years. I feed stock for beef only, and I consider I have made the price in extra beef and health to my cattle at least three times over since I bought the bowls, without considering the saving in labor. I have been asked for my opinion and I am glad to give it to you. Yours truly,

(Signed) J. J. COCHRANE.

BT Water Bowls certainly are extremely profitable to the dairyman, but not less so to the man who keeps beef cattle.

BT Bowl is Neat in Appearance

The BT Bowl was made especially for Steel Stalls. It looks well on the stalls. A row of BT Bowls improves the appearance of the stable. The long, shallow type of bowl has an awkward appearance, especially when used with steel stalls.

BT Bowl a Deep Bowl

The BT Water Bowl (illustrated on page 182) is 9 inches deep, not including the cup shaped recess at the bottom, which is 2 inches deep. This gives a greater head of water than there is when the bowl is only 4 or 5 inches deep and a correspondingly greater pressure from the regulating tank. The result is that the water flows into the bowl more freely and quickly and the cows can get the water without delay. It is easier to install BT Bowls, for the great depth will take care of a slight variation of the level of the bowls. If a shallow bowl is an inch or so higher than the others of the row, there will be scarcely any water in it; so, shallow bowls must be perfectly level.

The BT Bowl is 12 inches wide one way across the top, and 11 inches wide the other way.

It is a strong bowl weighing 20 pounds, which is more than double the weight of most bowls. The edge is large and rounded, adding to the strength.

The Cow Cannot Splash

The great depth of the BT Water Bowl has another big advantage. It prevents the cow from splashing the water out into the manger or over the passage. Some cows get this habit. If they should develop it with BT Water Bowls it is easily overcome. Bend the float in the regulating tank down an inch or two so that the water will not come up so high in the bowl. After the cow has forgotten how to splash bend it back and let the water come to the top again.

It is impossible to do this with a shallow bowl in which there is only about 5 inches of water at the best of times. Cutting off a couple of inches would leave the cow nothing to drink. Further, the shape of the BT Bowl makes it difficult for her to splash. There is plenty of room for the cow to drink, but no extra space to give her side movement, as is the case with the wide, shallow type of bowl.

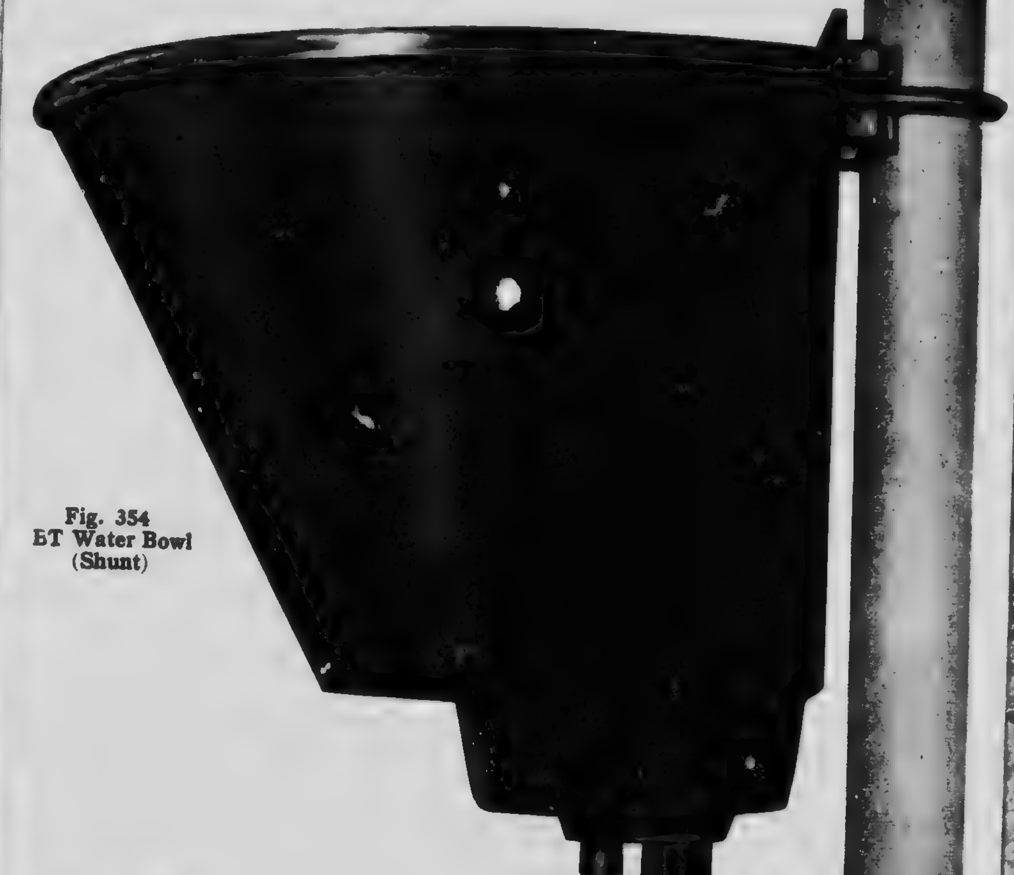


Fig. 354
BT Water Bowl
(Shunt)

Fig. 356
Offset Tee (Salleg)

Cross Section of
Fig. 354

BT Bowl is Easy to Clean

The BT Bowl is the only bowl provided with a simple means of cleaning. Feed particles and sediment will settle in the bottom of any bowl and it needs to be cleaned out from time to time. To remove this from the BT Bowl, you have only to pull out a small rubber plug in the bottom of the bowl and the accumulations will run out. See Fig. 354, page 182.

Doesn't Interfere with the Cow

The old type of water bowl was not built in accordance with modern ideas of cow comfort. It extends far beyond the stall post on either side and interferes with the cow's movements. The BT Bowl is deep, rather than long, and, while it holds more water, is not in the way. It is an especially good bowl to use with steel stalls. The BT Bowl is practically round and there are no sharp corners that might injure the cow when she throws her head around.

Supplied with Valve in Bottom

The valve in the bottom of the BT Bowls is shown on page 186. This valve prevents water running back into the pipes from the bowl. Thus the pipes are prevented from clogging. There is no danger of disease germs being carried from one cow to another. Most water bowls have no valve in the bottom and when a cow starts to drink, the water in the bowls immediately near her lowers, causing a back-flow of water into the pipe.

A strainer fits closely around the valve and valve seat of the BT Bowl, and holes in the strainer are placed around the rim, not in the centre. The strainer protects the valve and the valve protects the pipe. As the valve seat is brass and the valve aluminum, they will not rust out.

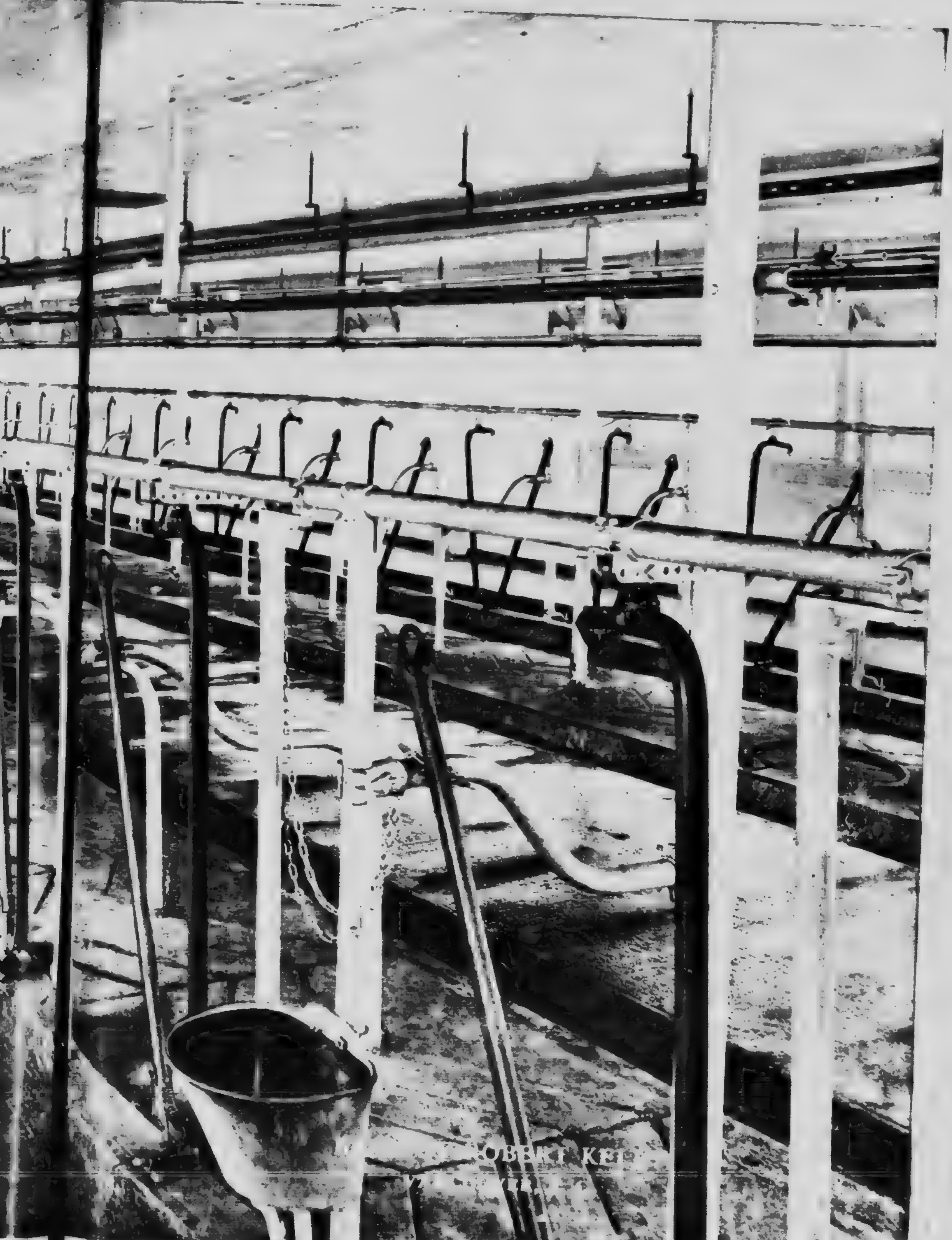
The valve, being aluminum, is light and responds quickly to the pressure of the water. When the water in the bowl gets low, the valve raises instantly so that the water from the supply tank will flow in. Then it drops back into place to prevent a back flow.

Brass Jam Nut to Secure Outlet Pipe

The valve seat of the BT Bowl is really a brass jam nut, which also serves to secure the inlet pipe. That is, the inlet pipe is held not only by being screwed into the bottom of the bowl, but also by this brass jam nut. As brass never rusts, there is no danger of a leak around the inlet pipe.

How BT Bowls are Furnished

BT Water Bowls are furnished with clips for attaching to steel stalls. When used with wood stalls they will be furnished with 3-inch coach screws for securing to the wood. The bowls are made of grey iron and finished in heavy asphaltum paint We will galvanize the bowls and finish them in grey enamel at slight extra charge.



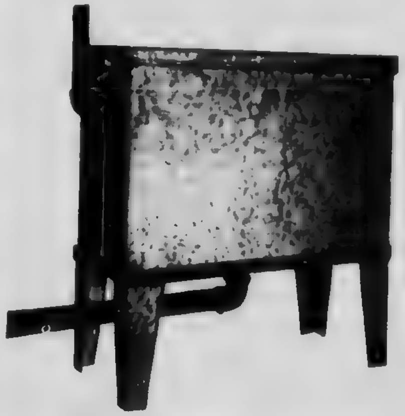


Fig. 460 BT Regulating Tank (Shad) with stand

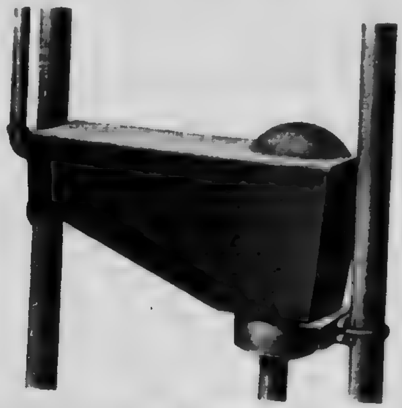


Fig. 500 BT Cast Metal Regulating Tank (Sheet) for High Pressure

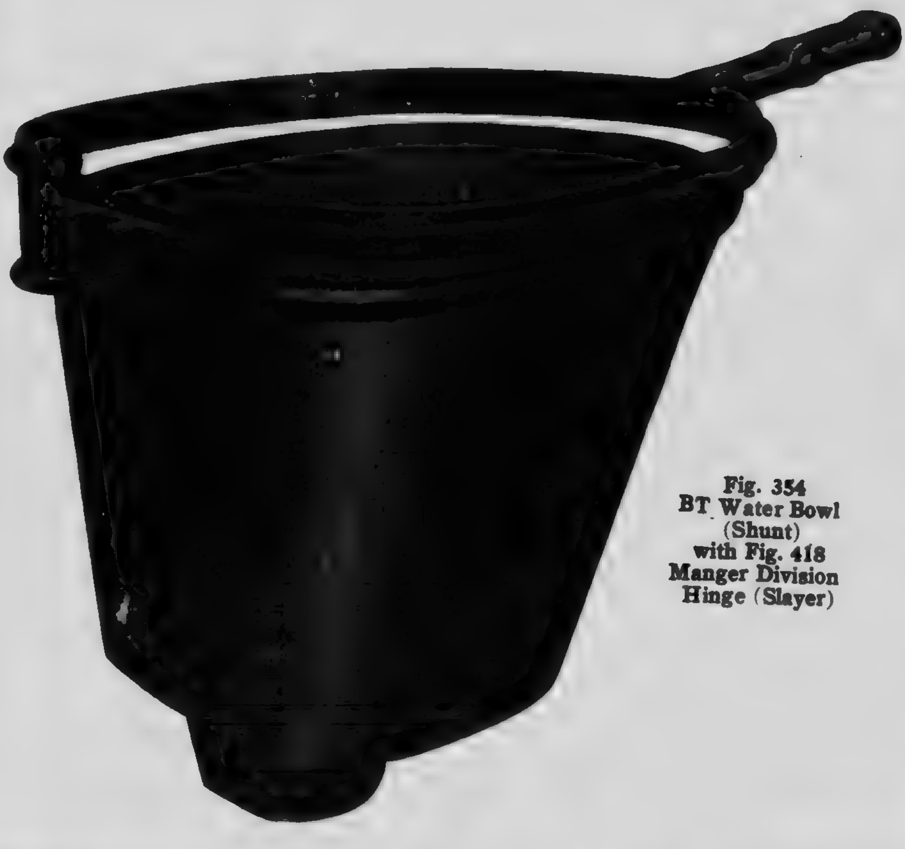
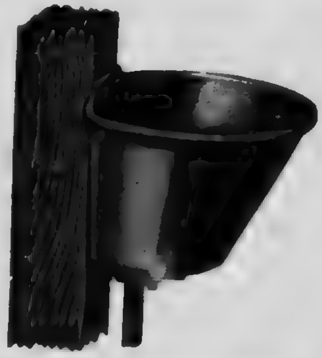


Fig. 354
BT Water Bowl
(Shunt)
with Fig. 418
Manger Division
Hinge (Slayer)



BT Water Bowls can be easily used with wood stalls as shown above

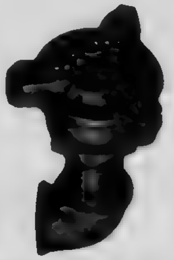


Fig. 489 (Shsg) Screen Outlet for BT Regulating Tank, Fig. 460

Hinge for Manger Division

A special manger hinge shown on page 186 permits the use of the lifting mangers or manger divisions with the BT Bowl. A hinge attaches to the back of the bowl, encircles the bowl and attaches to the division. Three round head stove bolts secure the hanger. The construction is very strong, the hinge being made of malleable iron.

Regulating Tank

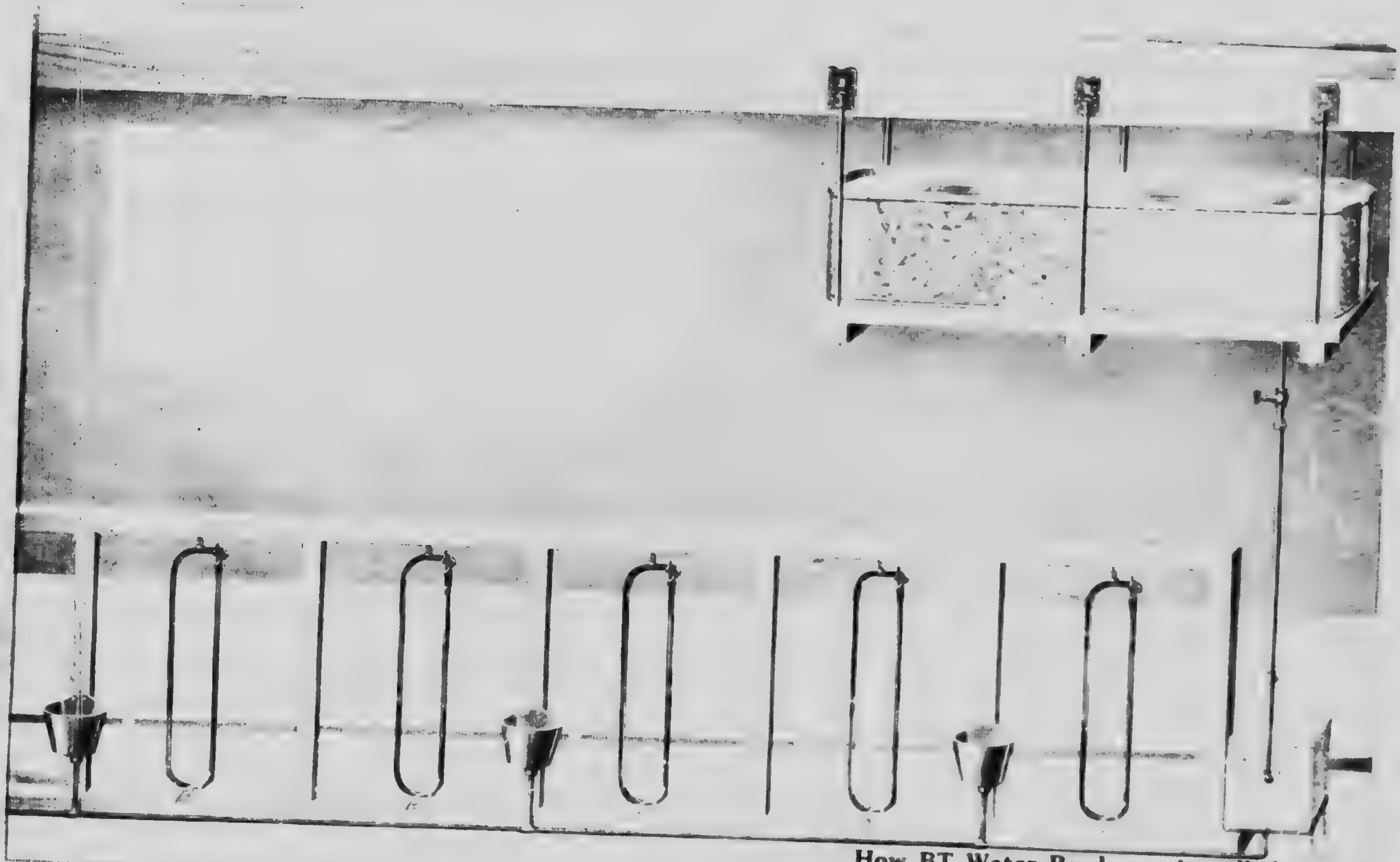
Water is pumped into the overhead supply tank. This feeds into the regulating tank. The water bowls are placed on a level with this and it controls the supply of water in the bowls. One regulating tank will do for any number of bowls up to 20.

The regulating tank most used is Fig. 460, shown on page 186. It will work against a pressure of 20 pounds. Should the pressure be greater than that, BT Regulating Tank, Fig. 500, page 186, should be used.

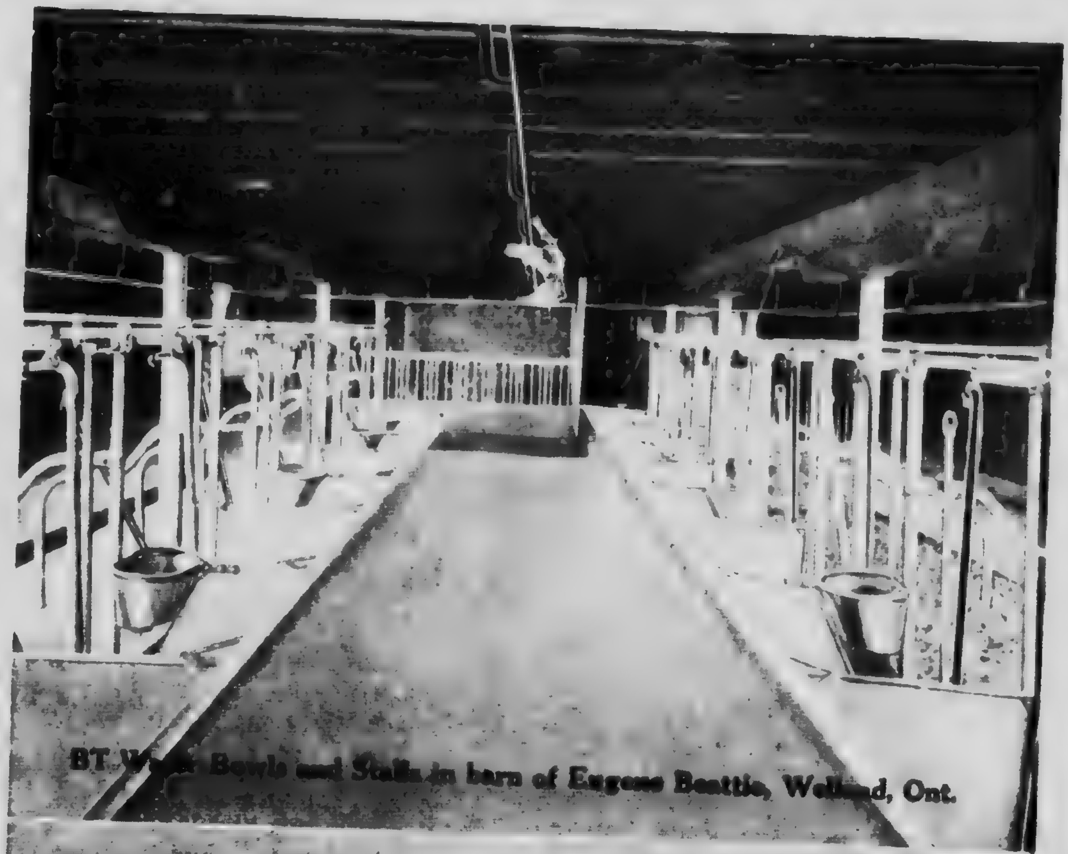
The BT Regulating Tank, Fig. 460, is 24 inches x 12 inches and 16 inches deep. It is made of 20 gauge galvanized iron. The float in the tank is copper, and the rod connecting the float to the valve is brass. The float is very large and will close off the water quickly and tightly so that there is no leaking. The tank has a steel lid to keep out straw or dust. This is a precaution to keep pipes from clogging. As an additional precaution, the outlet is covered with an iron screen and sheet of brass gauze. See Fig. 489, above. A steel stand as illustrated by Fig. 460, page 186, is supplied with the tank at slight extra charge.

For high pressure use the BT Regulating Tank, Fig. 500, page 186. We recommend this tank when the water bowl outfit is supplied from city pressure. It is made of grey iron. The float ball and valve are brass. Only a slight movement of the float is required to open the valve so that when a very small amount of water is taken from the bowls they are instantly refilled. There is a close fitting cast metal cover to keep out dirt, and a double screen protects the outlet from clogging. The inlet is tapped for ½-inch pipe. The outlet is in the bottom and is tapped for 1¼-inch pipe. This tank is furnished with clips to attach it to the stall post or finished end.

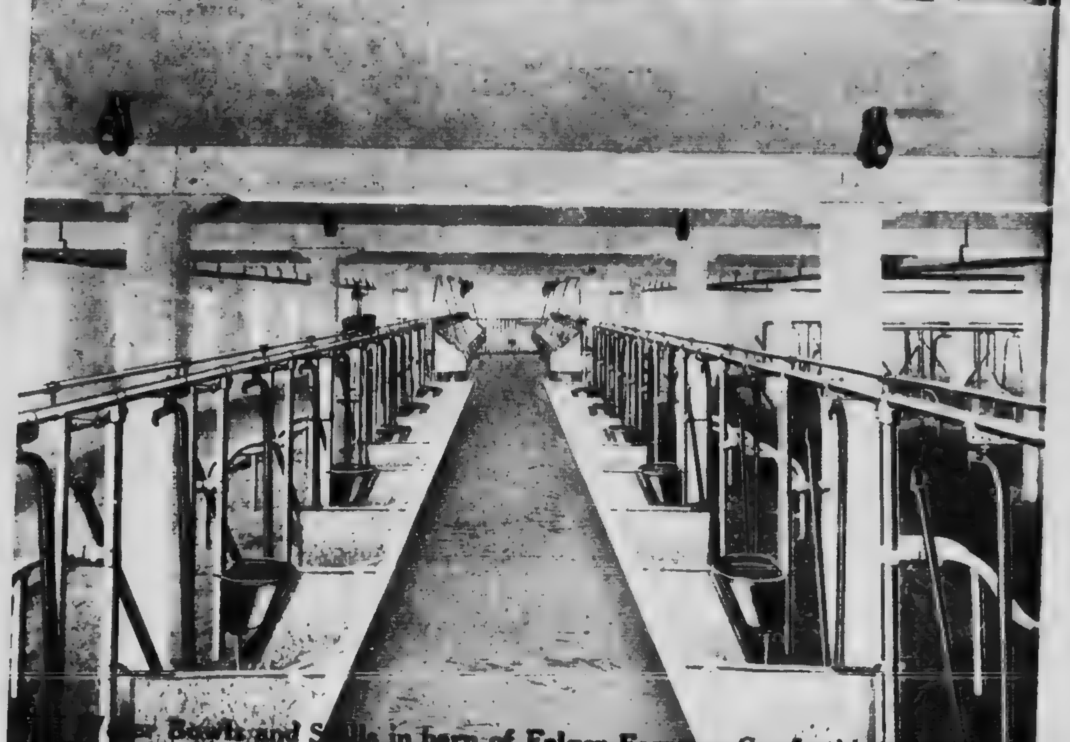
Water Bowls should be installed so that the lowest point of the bowl is 12 inches above the level of the cattle stand. The ¾-inch lead pipes are regularly supplied 12 inches long. The measurement of 12 inches is taken to the bottom of the cup-shaped recess at the bottom of the bowl.



How BT Water Bowls are installed.



BT Water Bowls and Stalls in barn of Eugene Beattie, Welland, Ont.



Water Bowls and Stalls in barn of Felger Farming Co., Lethbrid

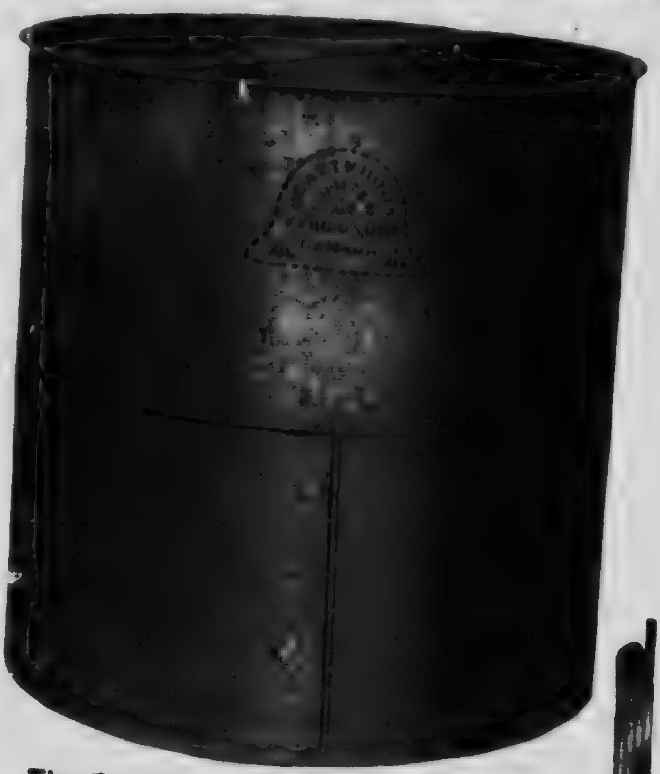
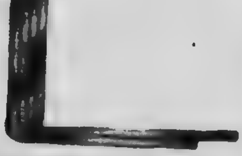


Fig. 449—Round Steel Storage Tank.



Double Lock Seam
used on BT Tanks.

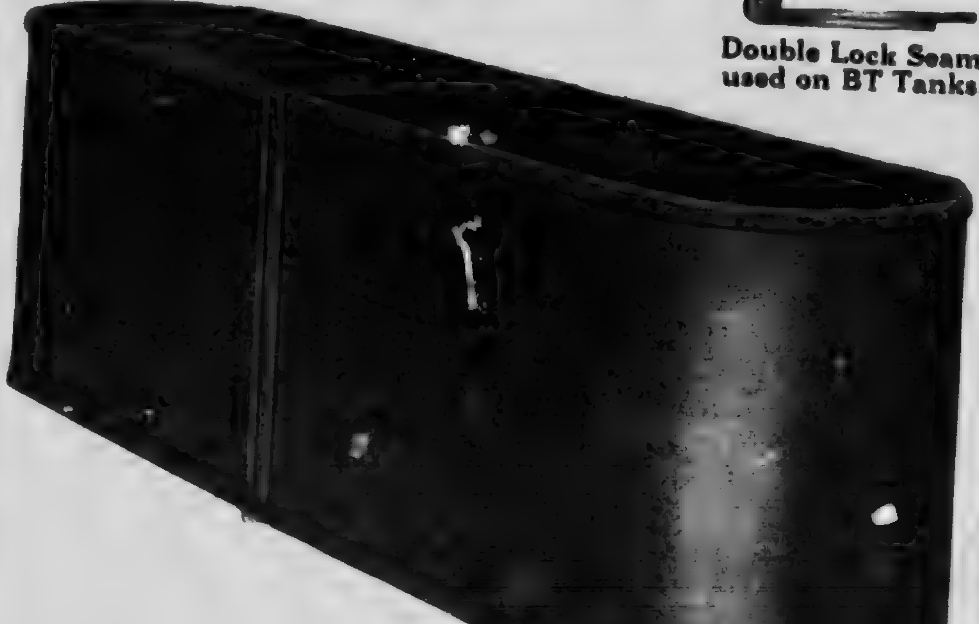


Fig. 490—Round End Steel Storage Tank.

BT Steel Storage Tanks

A storage tank for water is needed on every farm. It can be used for storing soft water for use in kitchen or bathroom. It can be used as a stock watering tank outside.

A storage tank of some kind is necessary in connection with a water bowl outfit. When used with water bowls the storage tank is usually suspended from the ceiling of the stable. The water is piped down from the storage tank to the regulating tank which controls the level of the water in the bowls. The illustration on page 188 shows this arrangement clearly.

The BT Round End Tank, Fig. 490, shown on the opposite page, is generally used when the tank is suspended from the stable ceiling. The best place for it is over a calf pen or some similar position where the reduction in head room is not inconvenient. This is a good place for the tank as the warm air of the stable keeps it from freezing.

Another very common position for the storage tank in a barn is above the stable, on the barn floor. In this case a Round Tank, Fig 449, should be used. Holes are frequently bored in the ceiling of the stable and in the barn floor so that the warm air of the stable can get up and around the tank. A roof should be built over the tank so that hay, straw, chaff, etc., will not get in.

BT Steel Storage Tanks are made in the following sizes. The construction of BT Tanks is described and illustrated on pages 192-193.

BT Round End Galvanized Tanks—Fig. 490

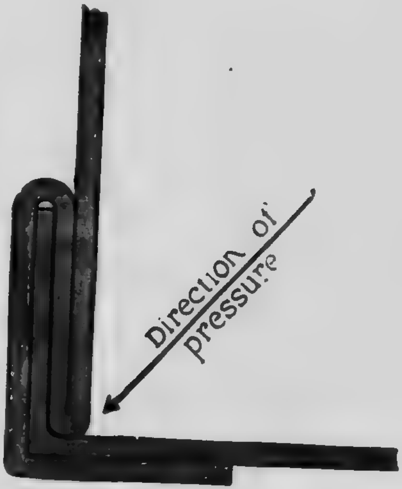
Width Feet	Height Feet	Length in Feet	Capacity Imperial Gals.	Capacity Pounds	Weight Pounds
2	2	4	90	900	74
2	2	4	130	1300	102
2½	2	8	220	2200	141
3	2	10	330	3300	185

BT Round Galvanized Tanks, Fig. 449

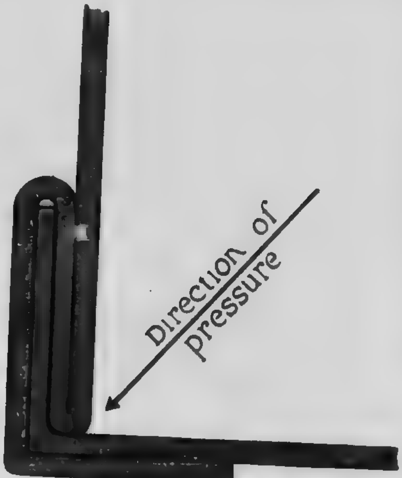
Diameter Feet	Height Feet	Capacity Imperial Gals.	Capacity Pounds	Weight Pounds
4	4	295	2950	145
4	5	370	3700	168
5	5	585	5850	211
5	6	700	7000	240

Water Required by Different Kinds of Stock

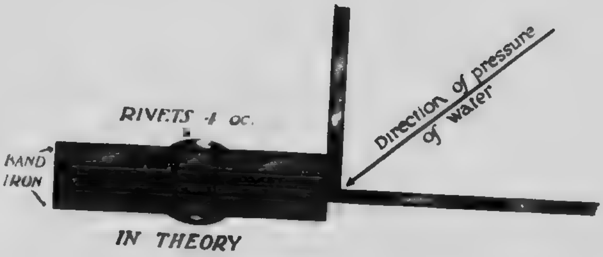
A horse requires 5.98 gallons per day. A cow 11.97 gallons; a calf 1.2 to 2.4 gallons; sheep, .36 to 1.44 gallons; pigs, .48 to .72 gallons. There are ten pounds of water in an Imperial gallon.



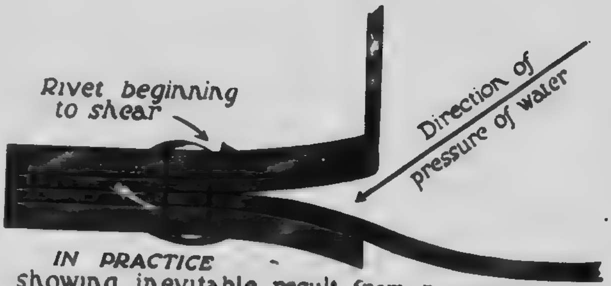
Double Lock Seam as used to join bottom of BT Tank to Sides



Showing that the greater the pressure the tighter the joint



IN THEORY



IN PRACTICE
showing inevitable result from pressure of water at this joint. tending to open.

The Construction of BT Steel Tanks

BT Tanks are made of 20 gauge galvanized steel. They will be made of No. 18 gauge material at an extra charge of 30 per cent., or of No. 16 gauge material at an extra charge of 60 per cent. We will put in lock nut and nipple or threaded connections as illustrated on page 192 for a slight extra charge, but no charge is made for cutting holes in the tanks for pipe. Tanks will be furnished knocked down when desired. Tanks shipped this way take a lower rate of freight.

All trimmings on BT Tanks are galvanized, no extra charge being made for the galvanizing.

Standard sizes of BT Steel Tanks are given on page 191.

Non-leaking Seams

BT Tanks are widely known because of the lock seams used in them. These seams are formed by a powerful bending brake. A single lock seam is used to join the ends of the sheet forming the sides of the tanks and a double lock seam joins the sides to bottom This double lock seam is shown on page 192 The effect of the pressure of the water is to tighten the seam. The greater the water pressure, the tighter the joint. All joints are soldered, to make doubly sure that they will be water-tight.

On other styles of tanks the joint is formed by bringing together the edges, riveting them and reinforcing them with angle irons. Vertical seams are formed by overlapping edges of sheets, riveting together and reinforcing with iron strips. Water pressure forces such joints apart. Further, the strips of angle iron and band iron have a most ungainly appearance.

The BT Round End Steel Tanks are supported by 2 inch x ½-inch channel irons, one or two being used on a side, according to the length of the tank. Trusses are connected across the bottom by 1½ inch x ⅛ inch band iron. Top of tank is encircled by 1 inch x 1 inch angle iron, turned in, and riveted to the sides at intervals of 9 inches. In this manner the tank is strengthened and stiffened, so that it will not bulge out of shape.

Round steel tanks, if over 3 feet high, are built in two vertical sections; the upper and lower section being joined by a double lock seam, soldered and riveted. Top is spanned by a length of 1 inch x 1 inch angle iron.

All BT Tanks are tested with water before they leave the factory. Owing, however, to the rough handling they are apt to get on the railroad, it is impossible to guarantee that they will not leak when they arrive.

If possible, test the tank with water before taking delivery of it. In any case, examine it carefully in case it has been damaged in transit. Have the damage, if any, marked on the freight receipt and a claim can then be entered.

It is easier to make repairs to a Tank before it is installed than after.

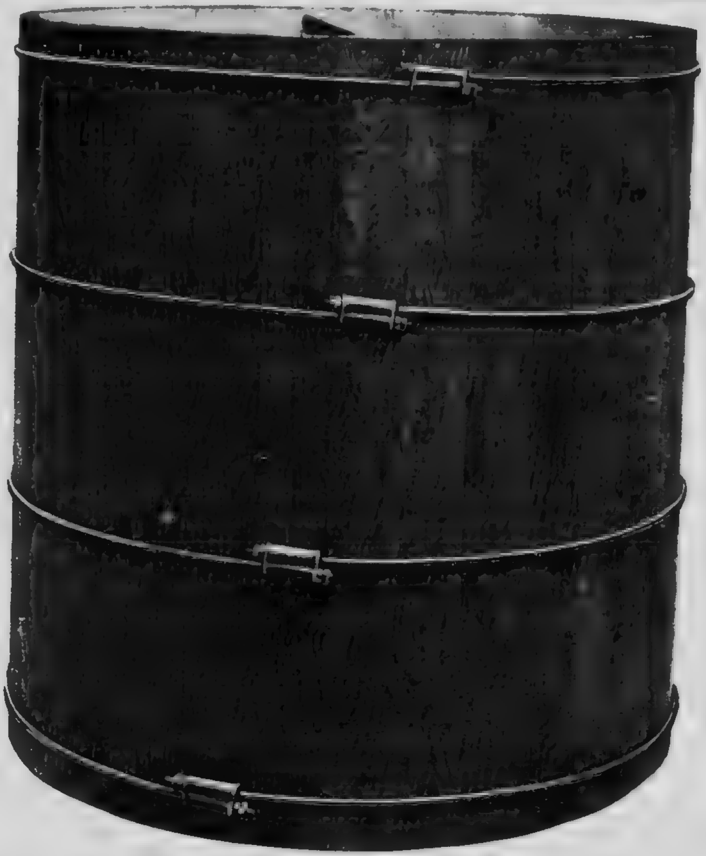
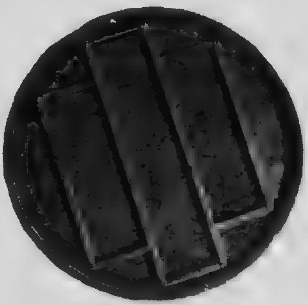
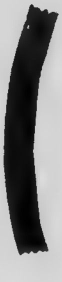


Fig. 492 BT Wood Storage Tank



Bottom of BT Wood Tank



Sides, Tongued and Grooved

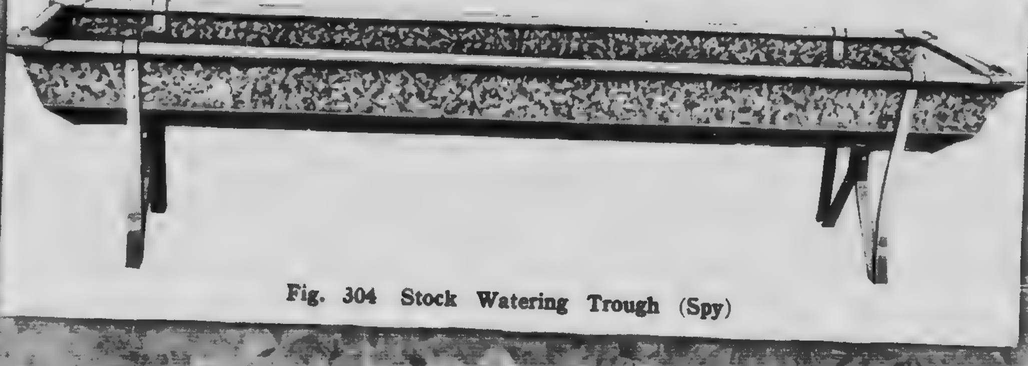


Fig. 304 Stock Watering Trough (Spy)

BT Wood Storage Tanks

For illustration of BT Wood Tanks see Fig. 492, page 194.

The sides and bottom of BT Wood Tanks are made of 2-inch first class tank stock. Only the best lumber is used.

The sides of BT Wood Tanks are tongued and grooved and the staves are tapered by machinery to suit the circumference of the tank. The machine that does the grooving also tapers the staves so that the tongue and groove suit the taper.

The tongued and grooved joints are an exclusive feature of BT Wood Tanks. They prevent the tank from leaking, and also stiffen and strengthen the tank.

BT Wood Tanks have round rods instead of flat bands. They are made of ½-inch or ⅝-inch steel, according to size. Round rods last much longer than flat bands. They have a greater body of metal and yet far less surface in contact with the tank.

The round rods are secured by lugs, which can be tightened if the tank should dry out. Flat bands cannot be tightened. BT Wood Tanks are painted on the outside with a good paint, which preserves the wood.

BT Wood Storage Tanks, Fig. 492

Diameter, Bottom feet	Length of stave feet	Capacity in Imp. gals.	Capacity pounds
4	4	295	2950
4	5	467	4670
5	5	597	5970
5	6	810	8100

BT Stock Drinking Trough,—Fig. 304

(Spy)

For illustration of the BT Stock Drinking Trough, see Fig. 304, page 194.

This most useful article is needed on every farm. It can be used in the stable for watering the stock or out in the yard near the pump. It is strong and durable. It can be fastened to the ground or moved from one place to another, as required.

It is strongly made to stand hard wear. Every part is galvanized. There are no corners to collect dirt. It can be flushed out and cleaned thoroughly.

It is supplied in the following lengths:— 5 feet; 7 feet; 9 feet, and 11 feet.

Note the neat clamps at the corners.

SPECIFICATIONS FOR THE BT STOCK DRINKING TROUGH

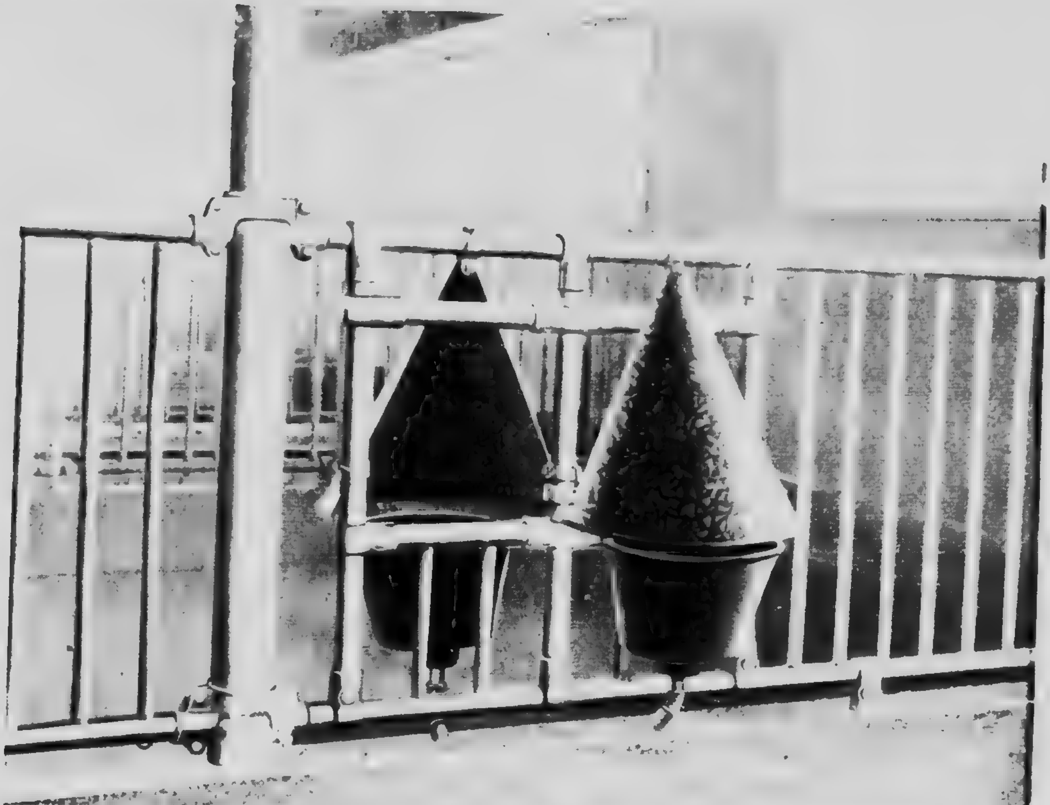
Lengths—Made in 5 feet, 7 feet, 9 feet, and 11 feet lengths.

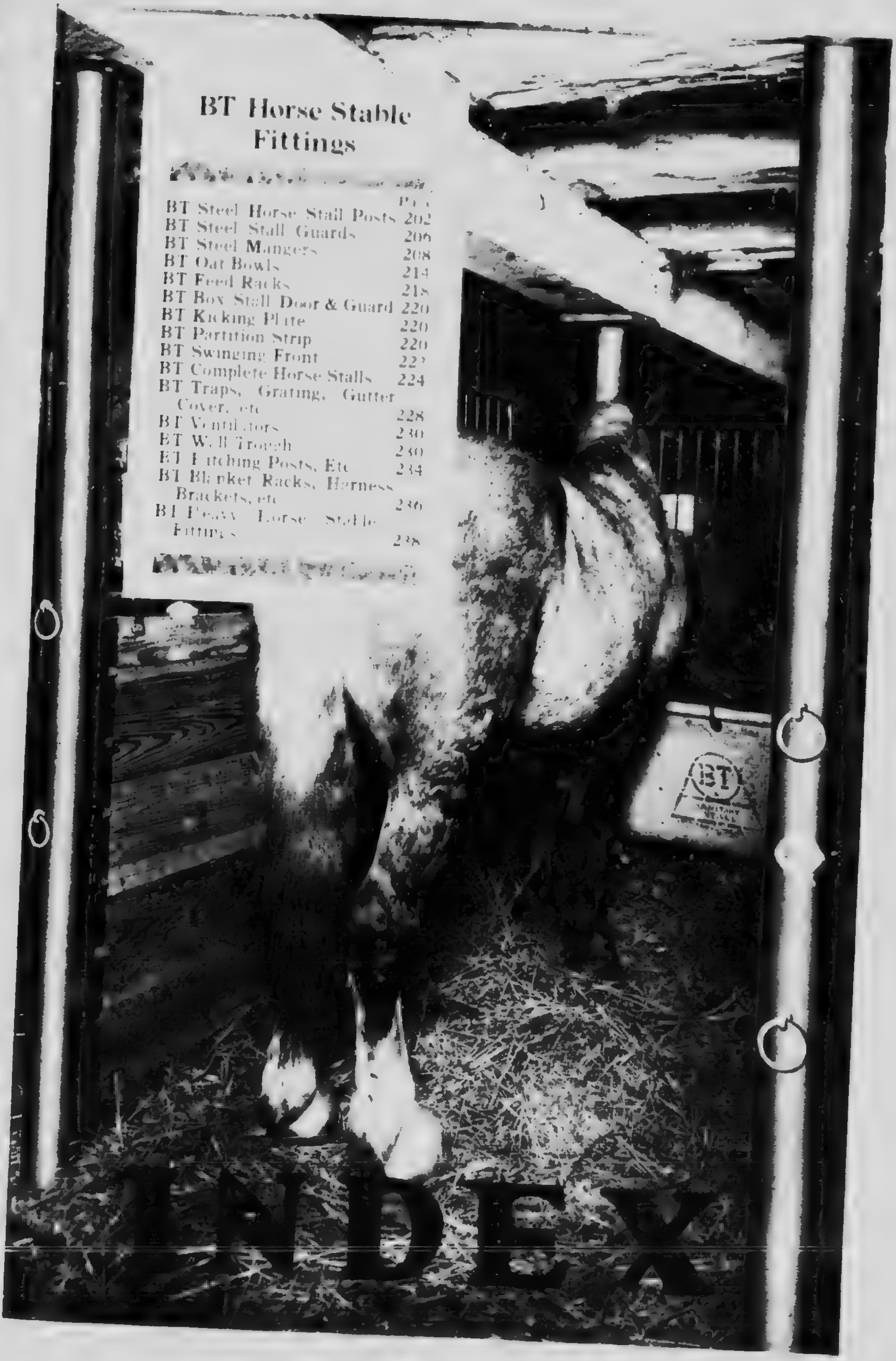
Materials—20 gauge sheet steel, galvanized, edges bound firmly and reinforced by 1 inch galvanized tubing.

Dimensions—Width at top 21 inches over all. Depth 10 inches. Top of trough 22 inches from floor.

The feet at the bottom are drilled for four bolts or coach screws.

Corner clamps are fastened to the reinforcing tubing by three bolts, which go right through tubing and clamp.





BT Horse Stable Fittings

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Barn of Chas. Mighton,
Elora, Ont.

BT Steel Horse Stable Fittings

A bright stable will count for much in keeping horses in good condition. This is especially true in the winter, when they must stay in the stables many days. They appreciate sunlit quarters. They respond as readily to kind treatment as to proper feeding. When such high prices for good horses prevail, they are certainly worth looking after. When the horses are brought into the stable for feeding at noon, after a forenoon's hard work in the fields, they are hot and tired. In the old wood stable it is close and stuffy and it will be found that the horses will sweat more in the stable than outside. They are often brought out after dinner covered with sweat. Certainly they have not been comfortable nor have they rested during the noon hour.

In BT Horse Stalls the air gets every opportunity to circulate through the stable, particularly if the partitions are built with a space between the planks, as shown on page 240. In this way the horses get a chance to cool off thoroughly and rest properly during the noon hour.

Steel fittings for the horse stable are indispensable to any farmer who prides himself in his animals and is anxious to have them look their very best. The open construction of the steel guards allows the sunshine to flood through the building. Every horse in the row of stalls can be seen, and every one of them will be shown off to the best advantage. You will be proud to take a visitor or a buyer into your stable. You will never be ashamed of the stabling if you use the BT Steel Fittings. They are indestructible. Horses cannot crib the iron of the guards or mangers. No amount of battering will injure steel stall posts. They never rot. The steel stabling always looks well.

Lumber is going up so high in price and is so difficult to obtain that it is an expensive matter to build a horse stable of wood throughout. Besides, expensive carpenters are needed to instal the wood and they have to be boarded while the work is being done.

BT Steel Fittings can be installed simply, easily and quickly. They save the expense of hiring a high priced carpenter. Steel stall posts may be set in either wood or concrete floors without difficulty.

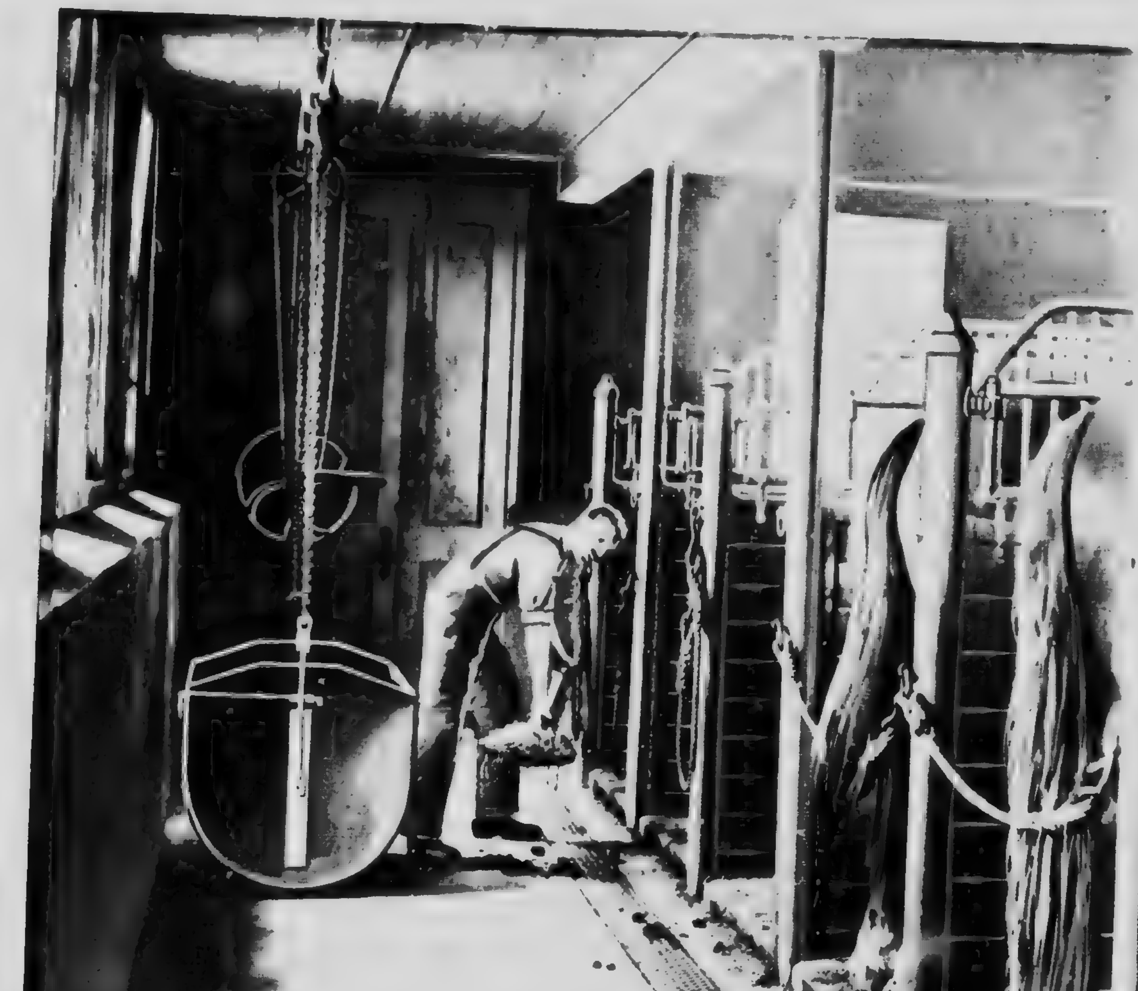
The lessening of the risk of fire is another strong point in favor of steel Horse Stable Equipment. This point is well recognized by the Fire Insurance Companies. See the letter from Mr. Jas. M. Aird on page 199. The posts, guards, mangers, hay racks, etc., are all fireproof, and not only largely prevent the start of a fire, but stop it from spreading if one should break out.

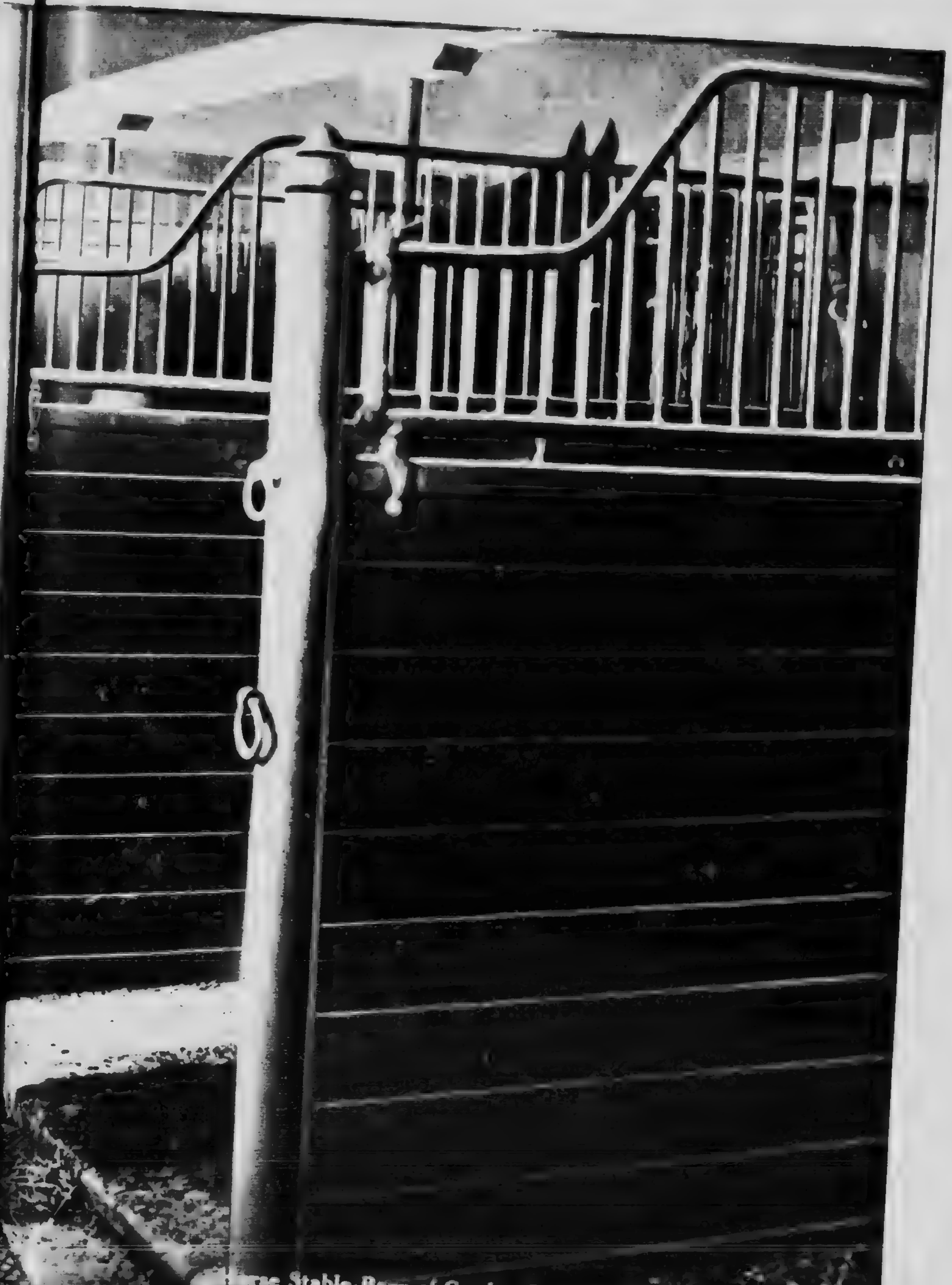
Steel Mangers, Hay Racks, Swinging Fronts, and Oat Bowls save time in feeding, and what is quite as important, they prevent the horses wasting their feed. The saving is important when we consider the present high prices of hay and grain.

Practical Money-saving Equipment

The BT Fittings are thoroughly practical, not only in manufacture but in design. Steel is used almost entirely in BT Horse Stable Fittings, instead of the heavy, clumsy cast metal usually employed.

A glance through this book will give an idea of the neat, substantial appearance of stables equipped with the BT Fittings.





orse Stable, Barn of Gordon Gooderham, Clarkson, Ont.

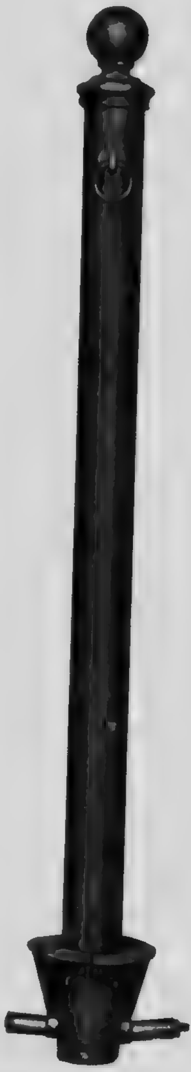


Fig. 717 BT Steel Horse Stall Post 5 ft. 6 ins (Stroll)

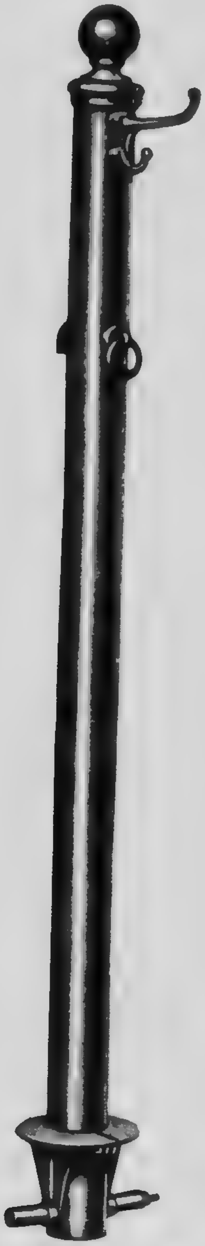


Fig. 718 BT Steel Stall Post, 6 ft 6 ins., for Fig. 551 Guard (Salit)

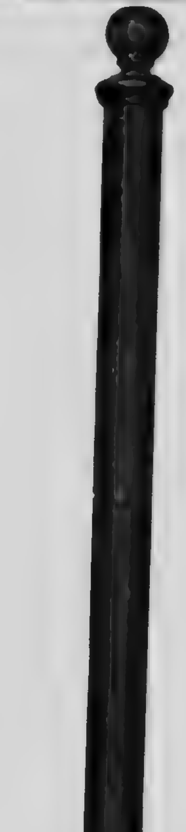
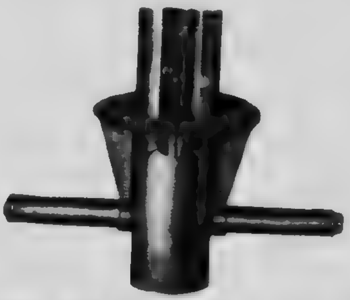
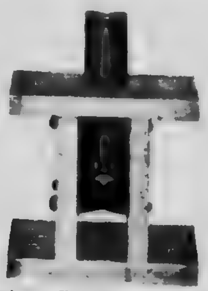


Fig. 719—BT Steel Horse Stall Post 7 ft. 6 ins. for Fig. 552 Guard (Salem)



Anchor used on BT Horse Stall Post, Fig. 718, for cement floor.



Anchor used on BT Horse Stall Post, Fig. 543, for wood floor. If posts are required for wood floor, specify Fig. 543 post, and state length required.

BT Steel Horse Stall Posts (non-supporting)

No part of a horse stable looks worse than wood posts after a few years' use. They are quickly disfigured by the kicking of the horses. Then, the strength of the partition depends upon the posts, and it is important that they be substantial. Where cement floors are used, it is difficult to make a substantial job with wood partitions and wood posts.

It is difficult and expensive to replace wood posts when used with cer floors. When a cement floor is being put in, steel posts should be u. even if the other steel parts cannot be afforded.

BT Steel Posts will overcome these difficulties. Nothing will add more to the appearance of a horse stable or mean more for its durability.

They save a great deal of time in framing as they are grooved up to receive dressed plank. The groove is 4 feet 6 inches long and is wide enough for 2-inch dressed lumber.

BT Steel Horse Stall Posts

Rings are secured in the tops of the posts, to which the horse may be tied when being cleaned.

The post is put down 8 inches in the cement, and is held by a malleable anchor. The anchor is a separate piece from the post and is bolted to it.

Note the neat caps with which the posts are furnished. These are an ornament in the stable. Caps are grey iron and are riveted to post.

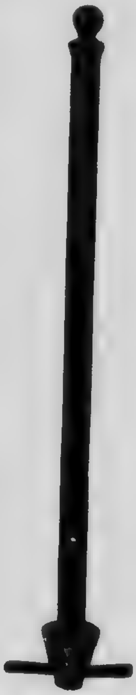
Fig. 719, page 202, shows the BT Steel Stall Post for cement floor. It is made of 4-inch O.D. full weight solid welded tubing, finished in green and gold, and furnished with malleable anchor. This post is used with the Box Stall Guard, Fig. 552, page 206.

Fig. 718, page 202, shows the same Stall Post when intended to be used with the 8-foot 6-inch guard, Fig. 551, page 206. It is also furnished with a tie ring.

Fig. 717 is the 5-foot 6-inch post.

As shown by the illustration on page 202, the 6-foot 6-inch Horse Stall Posts, Fig. 718, are fitted with Harness Hooks, firmly attached to the post. These are a very great convenience. The harness can be kept handy to the horses.

When ordering any of the above posts for a wood floor, specify Fig. 543 post, and state which length is required, viz., 5 foot 6 inches, 6 foot 6 inches, or 7 foot 6 inches.



The BT Stall Post —one-way.

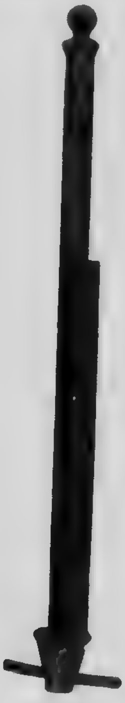


Fig. 548 BT Two-way Stall Post, Right Angle (Still)

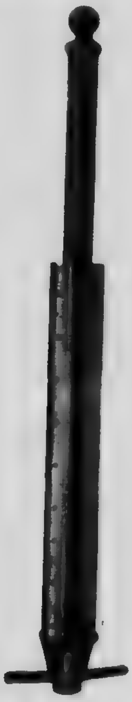


Fig. 549 BT Three-way Stall Post (Stilted)

Fig. 550 BT Four-way Stall Post (Speech):

BT Box Stall Posts

These posts are designed to rigidly support box stall partition.

They are made of 4-inch O.D. full weight, solid welded steel tubing, a standard length (less cap) of 7 feet 6 inches. They are finished in green and gold and are furnished with cap and anchor for concrete or wood floor, the same as Figs. 719, 718 and 717, pages 202 and 203.

One side is grooved a distance of 4½ feet. For a two-way post, one channel is added; for a three-way post two channels, and for a four-way post three channels. Channels are steel and are provided with ⅜-inch bolts to hold 2-inch dressed plank.

Fig. 548, Two-way Stall Post, per foot, 14 pounds.
Fig. 549, BT Three-way Stall Post, per foot, 15½ pounds.
Fig. 550, BT Four-way Stall Post, per foot, 17 pounds.

What Purchasers Say

Mr. Chas. Mighton, of Elora, whose barn is shown on page 194 writes us:

"Just a line to say that we are well satisfied with your stable outfit. I find the work much easier than the old stable, also it is very much more sanitary. We are well pleased with the steel swinging fronts of our horse stalls as they are so durable and clean. The sunlight can flood through them. We also thank you for the plan of the stable, which was a great help to us in building it."

Mr. Jas. M. Aird, of Montreal, who is using over four thousand dollars' worth of BT Horse Stable Fittings in his barn, writes as follows:

"The fact that these fittings are fireproof is worth something in the saving of insurance. In fact the building of our new stable not only reduced very much the cost of insurance on the stable, horses, harness, etc., but it decreased the insurance on the surrounding buildings."

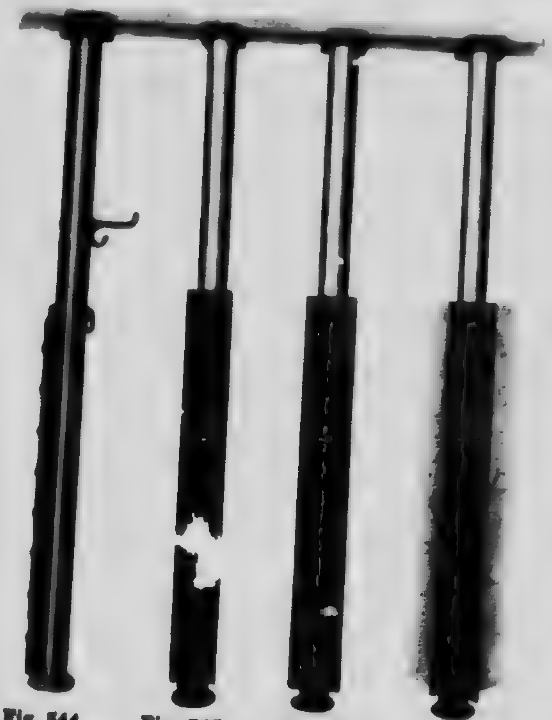


Fig. 544
BT One-way Column (Smart)

Fig. 545
BT Two-way Column Right Angle (Smut)

Fig. 546
BT Three-way Column (Smirch)

Fig. 547
BT Four-way Column (Skirt)

BT Supporting Horse Stall Posts

BT Supporting Horse Stall Posts are furnished with steel channels and ⅜-inch bolts to hold 2-inch dressed plank. They are used with either Box Stalls or tie-up stalls. Standard channels are 4 feet 6 inches high, but can be furnished at extra price to run to ceiling when a close partition is desired. Posts will be made any lengths requested.

Specify size of beam to be supported, so we will know what size caps and bases are required. 6-inch caps and bases are supplied unless another size is specified.

Tubing used is 4-inch O.D. full weight, solid welded steel tubing.

Fig. 544 BT One-Way Column, weight per foot, 12½ pounds.
Fig. 545, BT Two-Way Column, weight per foot, 14 pounds.
Fig. 546, BT Three-Way Column, weight per foot, 15½ pounds.
Fig. 547, BT Four-Way Column, weight per foot, 17 pounds.

The caps and bases for these supporting posts are made in four sizes: 6 inches, 8 inches, 10 inches and 12 inches.

The caps on BT Supporting Columns are fitted with flanges on both sides to keep the beam lined up over the centre of the column. Smaller flanges run at right angles to these. These flanges prevent the girder from getting off the centre of the support and also prevent the joint between two beams from widening Fig. 544, is always supplied with 8-inch harness hook. This post is often used to form one of a row of posts, the remainder of which are Fig. 718. Fig. 718 is supplied with Harness Hook, so Fig. 544 is fitted in the same way, to make the row uniform.

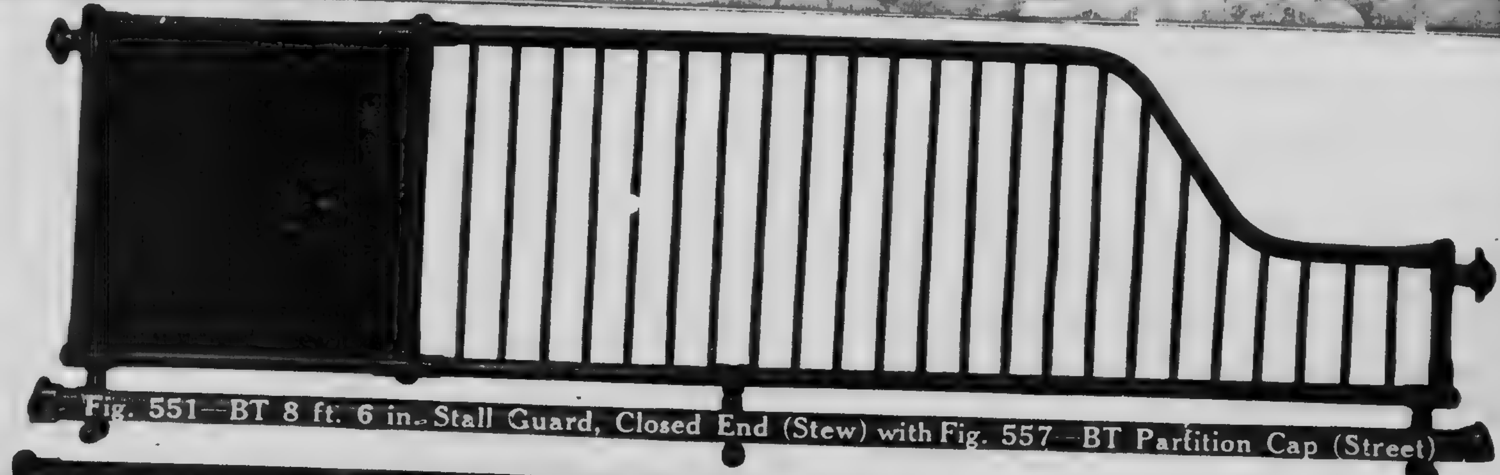


Fig. 551—BT 8 ft. 6 in. Stall Guard, Closed End (Stew) with Fig. 557—BT Partition Cap (Street)

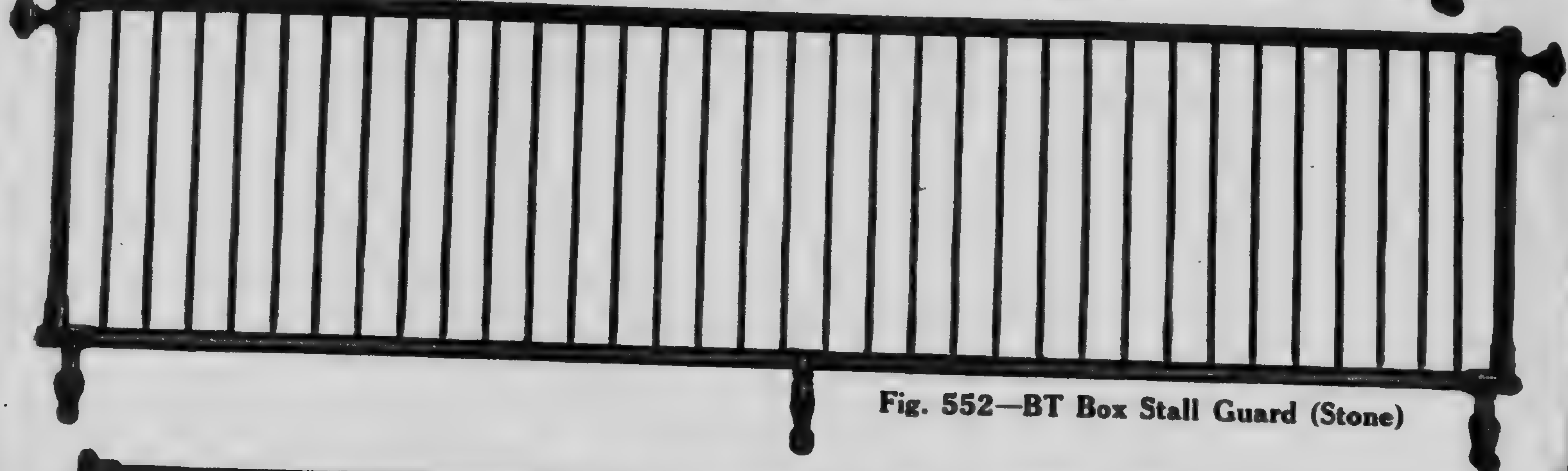


Fig. 552—BT Box Stall Guard (Stone)

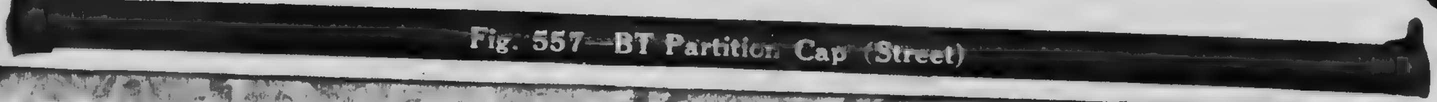


Fig. 557—BT Partition Cap (Street)

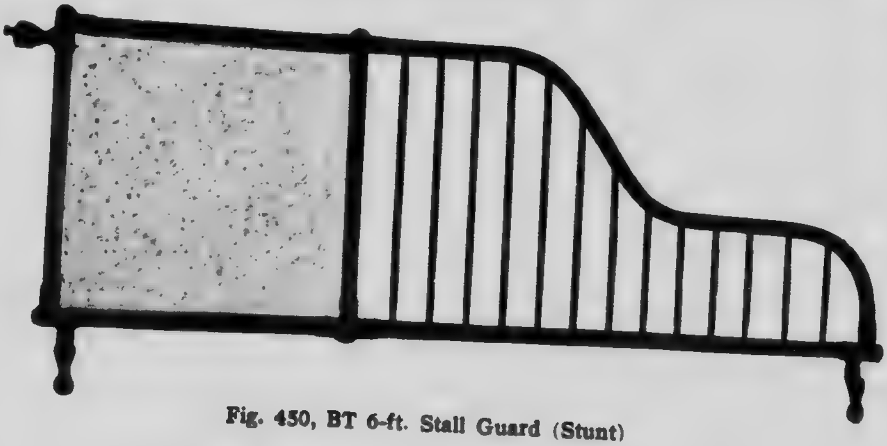


Fig. 450, BT 6-ft. Stall Guard (Stunt)

BT Steel Stall Guards

(Patented)

BT Stall Guards add much to the appearance of the horse stable. Their open construction does not obstruct the sunlight. It is a simple matter to keep the guards clean, as there is small surface to collect dirt. Main frame is made of 1 5/16-inch O.D. steel tubing, corners being bound together with malleable iron clamps, which are riveted on the tubing, 9/16-inch steel rods are set on 3-inch centres in holes drilled into the frame.

A painted sheet panel is furnished at the head of the guard to prevent horses biting at each other. It is 2 feet square and is made of 20 gauge material. It is securely fastened by being inserted in the tubing at each end and riveted.

Partition Caps

Partitions should be finished with neat partition caps. Fig. 557, page 206. As these are round, they can be kept free from dust. They prevent horses cribbing the partition. Heavy U-bar steel, 3-32-inch in thickness 1 7/8-inch wide and 2 inches deep, is used.

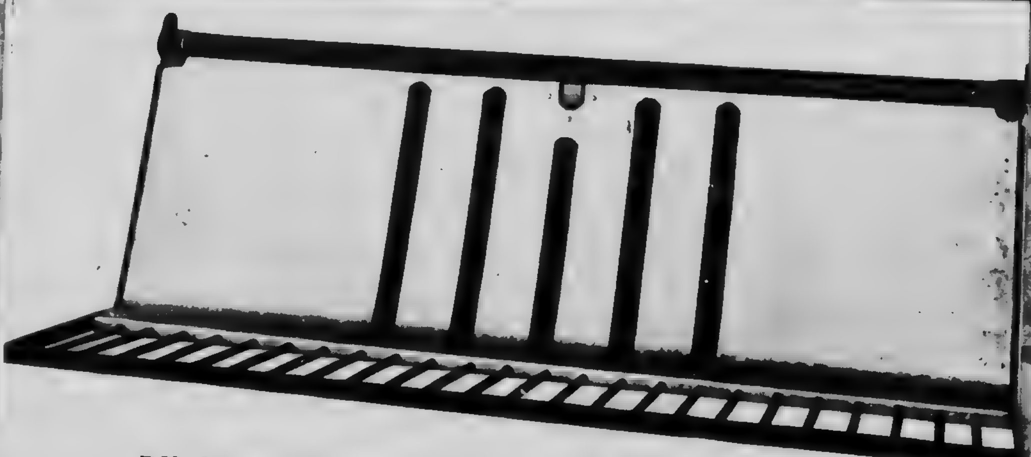
The guards are secured at the front of the stall by 3/8-inch lag screws or 3/8-inch anchor bolts, as the case may be. 8 foot 6 inch guards are secured to steel post by machine screws. Saddle clamps secure the guard to partition and also hold the partition cap in place.

Fig. 551, 8-foot 6-inch closed stall guard, as on page 206, height 2 feet 2 inches. Weight 78 pounds. Finished in green.

Fig. 552, box stall guard, illustrated on page 206. Height, 2 feet 2 inches, Finished in green. Specify length in ordering, as it is made any length desired.

Fig. 450, 6-foot stall guard as above. Height 2 feet 2 inches. Weight 56 pounds. Finished in green.

BT Closed Manger. Fig. 297.



BT Closed Manger with Grated Bottom. Fig. 330.

BT Galvanized Box Stall Manger. Fig. 305.

BT Closed Manger with Oat Box—Fig. 297

(Stray)

A great deal of feed can be saved by a properly constructed manger. If the horse is allowed to slobber, or nose the feed out, he will waste enough in time to pay the cost of a good manger.

The horse will thrive and do better on clean, wholesome feed. It is difficult to keep it so if the old, unsanitary, dust-laden manger is in use. The BT Closed Manger, Fig. 297, is best when cut feed is being used. No horse can destroy it by cribbing. The smooth, rounded bottom is easily kept clean.

A sheet steel oat box is furnished with it and is separate from the rack. It has wide flanged edges to prevent waste of feed. See Fig. 589, page 214. It may be attached to either side of the stall. It is 8 inches deep, 12 inches wide and 20 inches long, and is made of 16 gauge galvanized steel.

Manger is made of 16 gauge galvanized sheet steel reinforced in the centre with 5 straps of 3/16 x 1¼ inch galvanized flat iron. It is reinforced along the top by 1⅞ inch O.D. galvanized steel tubing, and the other three sides of the steel sheet are reinforced by forming the sheet into a flange on a powerful brake. At the bend in the manger the ends are further reinforced by a strong malleable iron casting. There is a hole in the centre for tying the horse, reinforced with a malleable casting. Flanges at bottom and sides are drilled at intervals of 8 inches for screws.

Standard length: 4 feet 10 inches for 5-foot stall, 24 inches wide at the top, 18 inches wide at bottom, and 21 inches deep. It weighs 60 pounds. Special lengths: The manger will be made of any special length desired, from 4 feet to 10 feet, if exact dimension is given. Be sure to give exact figures in ordering, as this manger is not adjustable.

BT Closed Manger with Grated Bottom and Oat Box Fig. 330

(String)

The specifications for this manger are the same as for closed manger, Fig. 297, except that manger bottom is grated to allow dust and chaff to escape from the hay. A sheet steel oat box, Fig. 589 (page 214), is furnished although not shown.

Bottom consists of ½-inch steel rods 12 inches long and 2½ inches apart from centre to centre. Rods are securely riveted in a flange formed at the bottom of the steel sheet and 1 x 5/16 inch flat steel bar. Sides of manger are supported by a steel frame of 1 5/16 inch material.

Standard Length: 4 feet 10 inches. Special lengths: Manger will be made any special length from 4 feet to 10 feet if ordered.

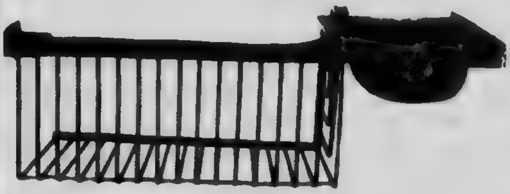
BT Closed Box Stall Manger—Fig. 305

(Sprawl)

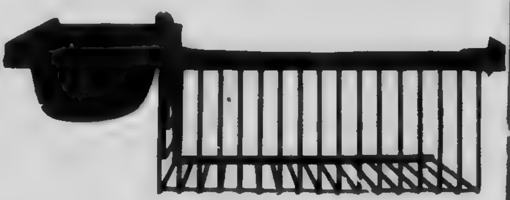
The construction of this manger is similar to that of Fig. 297. In order to suit a box stall it has one closed end made of 16 gauge galvanized sheet steel. The front is reinforced by 1⅞-inch steel tubing. Standard length is 4 feet but special lengths are furnished if exact dimension is given. Other specifications are the same as for Fig. 297, given above.

BT Right Hand Open Manger—Fig. 296

(Strain)



BT Right Hand Open Manger, Fig. 296 (Strain)



BT Left Hand Open Manger, Fig. 531 (Strained)

This is a very substantial manger. It is a combined hay rack and oat bowl. The rack is made of steel rods, allowing all dust and chaff to escape from the hay, and in this way removing one of the chief causes of heaves. It is self-cleaning. The length is adjustable a distance of 2 inches.

The feed box is well separated from the rack, so the horse cannot nose hay into it. It is very spacious, being 15 inches wide and 8 inches deep. The main frame of the manger overlaps the edge of the bowl and forms a guard to prevent the horse wasting his feed by nosing it out. The oat bowl is bolted to the frame.

The hay rack is made of ½-inch steel rods, shouldered and securely riveted to a 1 x 5/16 inch flat steel frame, which is in turn bolted to the main frame with 5/16 inch machine bolts. At the bends the rods are reinforced with a galvanized steel strap, which keeps them strictly in place. These are riveted together with tinned rivets between the rods.

Note that the rods are very close, to prevent waste of the hay. They are set on 2½ inch centres. The manger is 22 inches wide, 22 inches deep. The manger has both a tie ring and a roller, so that a weight may be attached to halter shank to take up the slack. The top is made of grey iron and is very heavy and strong.

Lengths: 4 feet 10 inches, adjustable to 5 feet; 5 feet 4 inches, adjustable to 5 feet 6 inches; 5 feet 10 inches, adjustable to 6 feet.

Weight: 4 foot 10 inch manger, 136 pounds; 5 foot 4 inch manger, 150 pounds; 5 foot 10 inch manger, 160 pounds.

Finish: This manger is finished in green.

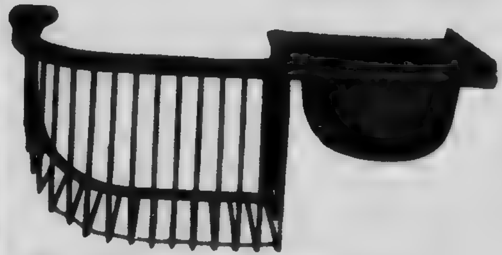
BT Left Hand Open Manger—Fig. 53

(Strained)

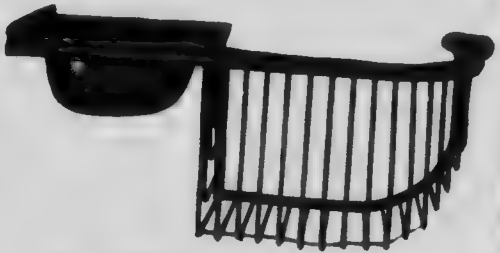
This is the same manger as Fig. 296, except that oat box is furnished on left-hand side, instead of on the right-hand side.

BT Right Hand Open Box Stall Manger—Fig. 553

(Stripe)



BT Right Hand Open Box Stall Manger, Fig. 553 (Stripe)



BT Left Hand Open Box Stall Manger, Fig. 298 (Scrub)

BT Open Box Stall Mangers are very much like the BT Open Manger, Fig. 296, page 210, the difference in construction being clearly indicated by the photos.

Dimensions of Fig. 553 are as follows:

4 feet long, 22 inches wide at widest point, and 20 inches deep. Oat bowl is 15 inches wide and 8 inches deep. The manger is supplied in the one size only. It is not adjustable. Rods in the hay rack are 2½ inches apart from centre to centre. Weight, 114 pounds.

BT Left Hand Open Box Stall Manger—Fig. 298

(Scrub)

The construction of Fig. 298 is the same as that of Fig. 553. The only difference is that the oat bowl is on the left hand, instead of the right hand side of the manger.

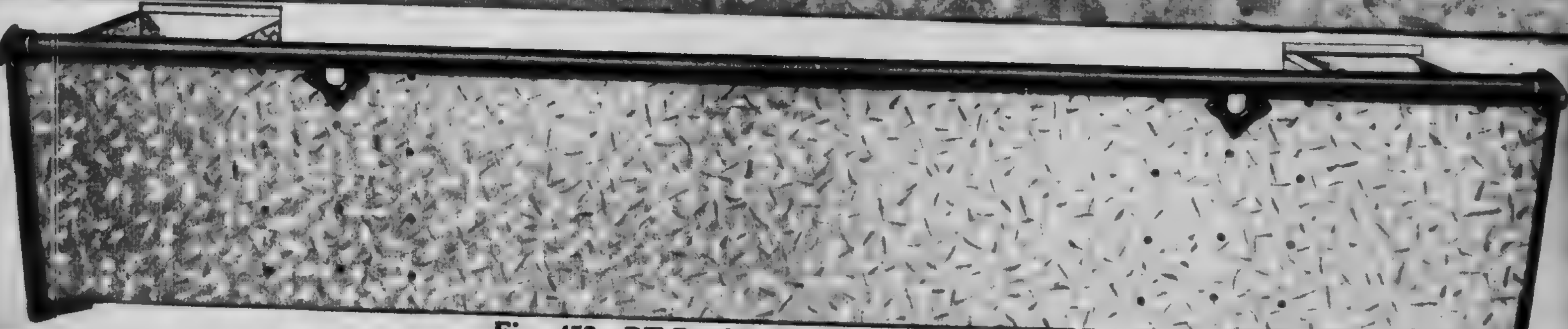


Fig. 453—BT Double Closed Manger. (Son).

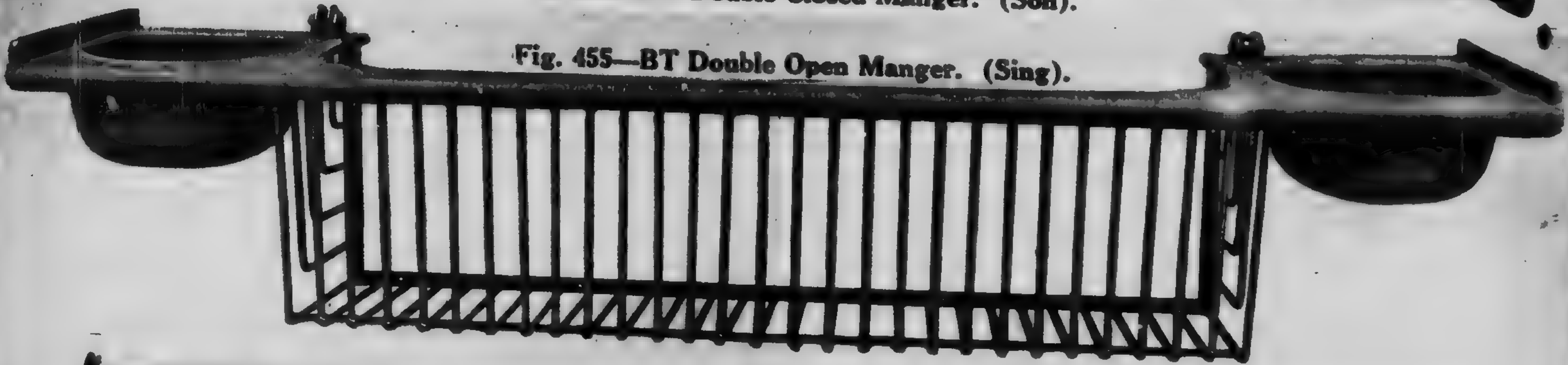
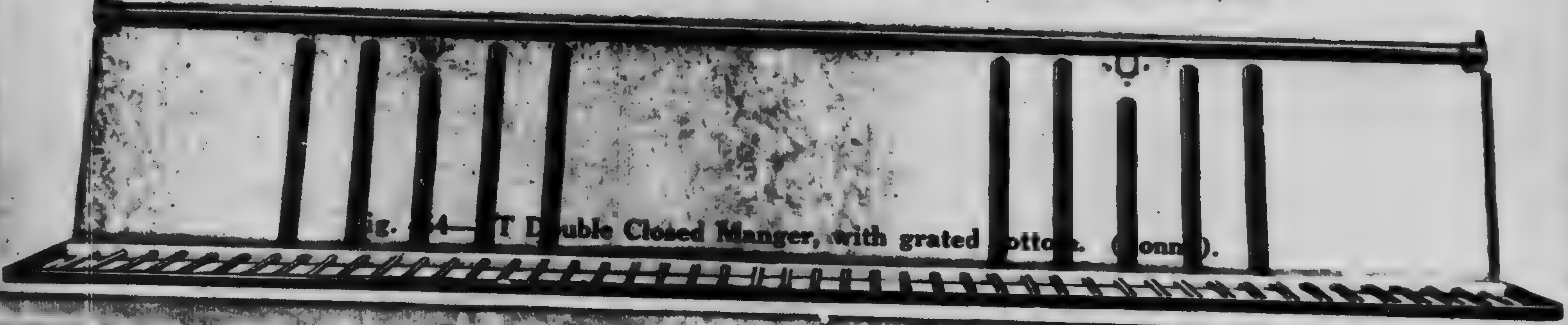


Fig. 455—BT Double Open Manger. (Sing).



ig. [illegible]—BT Double Closed Manger, with grated bottom. (Conn[illegible]).

Fig. 453—BT Double Closed Manger with Two Fig. 589 Oat Boxes

(Son)

The BT Double Closed Manger is similar in construction to Fig. 297 Closed Manger illustrated on page 208, but is intended for a Double Tie-up stall or Box Stall.

Manger is made of 16-gauge galvanized sheet steel, reinforced in two places with 3 straps of ⅛ x 1½-inch galvanized iron. It is reinforced along the top by a piece of galvanized steel tubing 1⅞-inch O.D. running full length of manger. The bottom edge and ends are reinforced by forming it into a flange by a powerful brake. These flanges are drilled at intervals of 8 inches. At the bend in the manger, the ends are further reinforced by a strong malleable iron casting. There is a hole two feet from each end for tying the horses, reinforced by malleable casting.

Standard length: 8 feet. It can be had 8 feet 6 inches; 9 feet; 9 feet 6 inches; 10 feet, and other lengths, at a small extra charge for each additional 6 inches of length. Manger is 24 inches wide at the top, 18 inches wide at bottom and 21 inches deep. It weighs 10 pounds per foot.

Fig. 455—BT Double Open Manger

(Sing)

The BT Double Open Manger is similar in construction to Fig. 296 Manger shown on page 210, but is intended for a Double Tie-up Stall or Box Stall.

There are two feed boxes, one at each end, each feed box being bolted to the frame as in Fig. 296.

The Hay Rack is made of ½-inch steel rods, shouldered and securely riveted to a 2 x 5/16 inch steel frame which is in turn bolted to the main frame with 5/16 inch machine bolts. At the bends the rods are reinforced with a galvanized steel strap, which keeps them strictly in place. These are riveted together with two tinned rivets between each rod. Rods are set on 2½-inch centres.

There are two tie rings and rollers.

Standard length: 8 feet. It can be had in other lengths at a small extra charge for each additional 6 inches in length. Manger is 24 inches wide and 22 inches deep. It weighs about 25 pounds per foot.

Finish—It is finished in green.

Fig. 454—BT Double Closed Manger with Grated Bottom and Two Fig. 589 Oat Bowls

(Sonny)

The BT Double Closed Manger with grated bottom is the same manger as Fig. 330, shown on page 208, but it is constructed for double tie up stalls or Box Stalls instead of single stall. There are two tie rings. Manger is braced near both ends with 5 steel straps ⅛-inch x 1½-inch.

Standard Length—8 feet. It can be had in other lengths at a small extra charge for each additional 6 inches of length. Manger is 24 inches wide and 18 inches deep.

Finish—All parts are galvanized and the frame is finished in green.

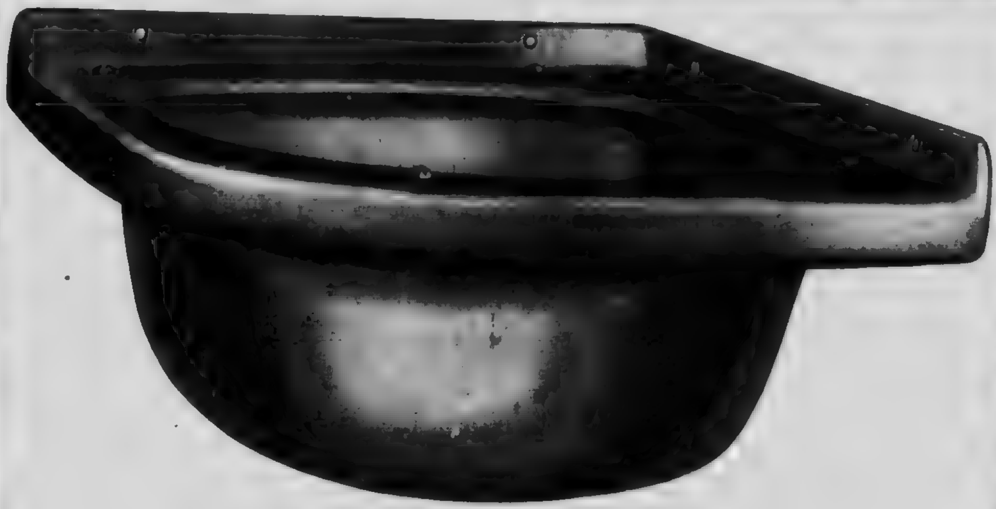


Fig. 301
BT Oat Bowl with Top Plate (Stem)

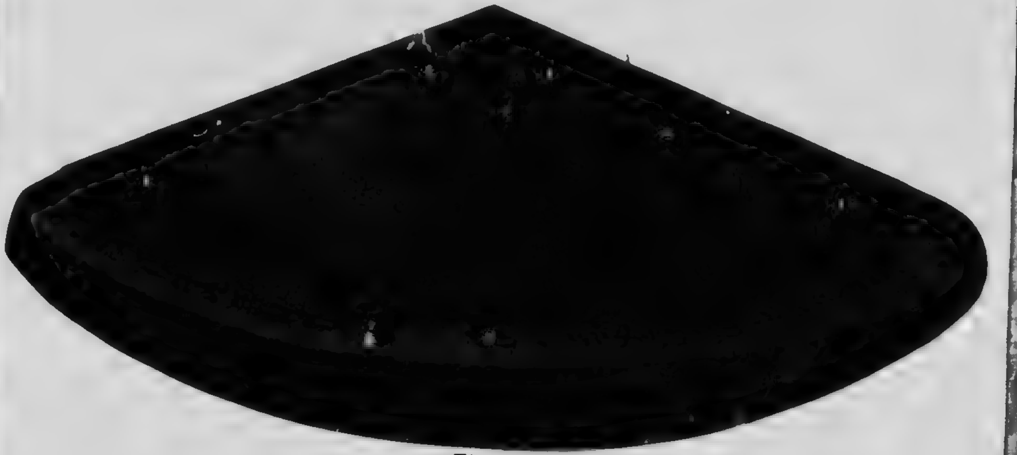


Fig. 334
BT Oat Bowl (Spray)

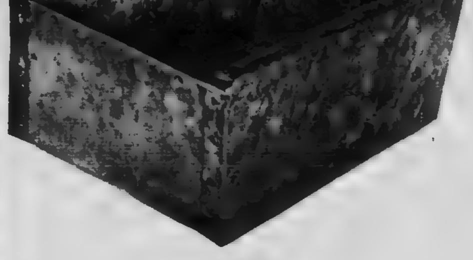


Fig. 589
BT Sheet Steel Oat Box (Sang)

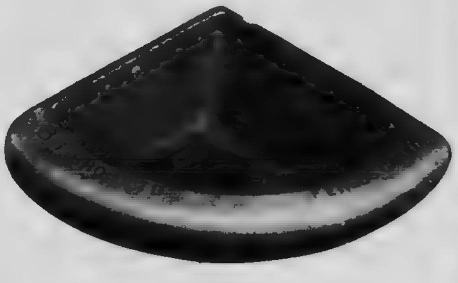


Fig. 456
BT Oat Bowl with Sieve Bottom (Step)

BT Oat Bowl with Top Plate—Fig. 301

(Stem)

The BT Oat Bowl with Top Plate is a neat corner feed box, for use in either box stalls or open stalls.

It consists of two grey iron castings, a bowl and a top plate, the two being bolted together. The top overlaps the bowl to form a flange, which prevents waste of feed.

Each side is 18 inches long. The bowl is 8 inches deep.

There is a broad flange along the top at each side, provided with holes, so that the bowl can be secured to the side and front of stall. This bowl is finished in green.

BT Oat Bowl—Fig. 334

(Spray)

The BT Oat Bowl, Fig. 334, is an inexpensive and very substantial feed box. It is made of just one casting, with a large rolled edge to prevent the feed from being worked out by the horse. The edge is nicely rounded so there can be no injury to the jaw of the animal.

Specifications

Size—16 inch with 16 inch sides, 9 inches deep, 30 pounds.

Materials—The bowl is made of grey iron and has two holes drilled in each side so that it may be attached to the stall with ⅜-inch lag screws.

Finish—The oat bowl is finished in black japan.

BT Sheet Steel Oat Bowl—Fig. 589

(Sang)

The BT Sheet Steel Oat Bowl is an inexpensive and very substantial feed box. It is made of 16 gauge galvanized steel, with wide flanged edges to prevent waste of feed. The large flat surface prevents the horse bolting his feed. There are four holes drilled in each side. The oat box may be attached to the stall on either side. Fig. 589 measures 12 inches x 22 inches at the top, and 12 inches x 20 inches at the bottom. It is 8 inches deep. It weighs 16 pounds.

BT Sieve Bottom Oat Bowl—Fig. 456

(Step)

The BT Sieve Bottom Oat Bowl is the same Oat Bowl as Fig. 334 above, but has the removable sieve in the bottom. This allows particles of chaff and dust to escape. The sieve can be removed for cleaning when desired.

Specifications

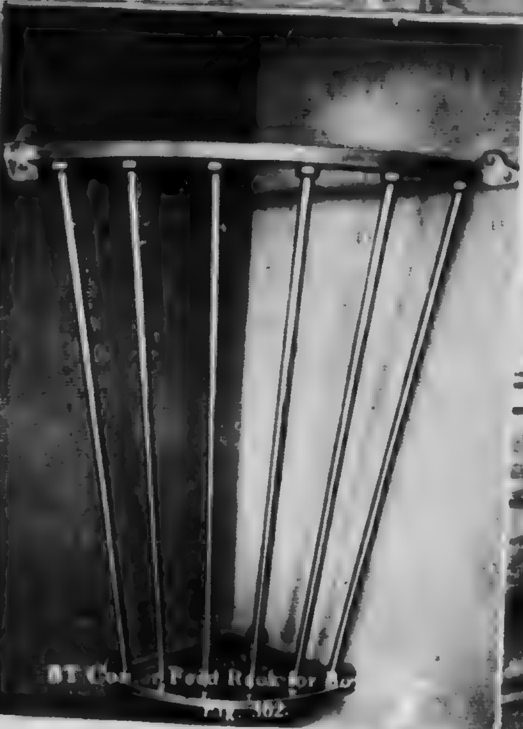
Size—16 inch with two 16 inch sides, 9 inches deep, 29 pounds.

Materials—The bowl is made of grey iron and has two holes drilled in each side so that it may be attached to the stall with ⅜-inch lag screws. The sieve is 7⅜ inches in diameter and the mesh is 5 inches in diameter. No. 16 gauge wire is used in the mesh; it is a 7 x 7 mesh; that is there are 7 wires to the inch. The mesh is secured by three round head stove bolts between the two grey iron discs.

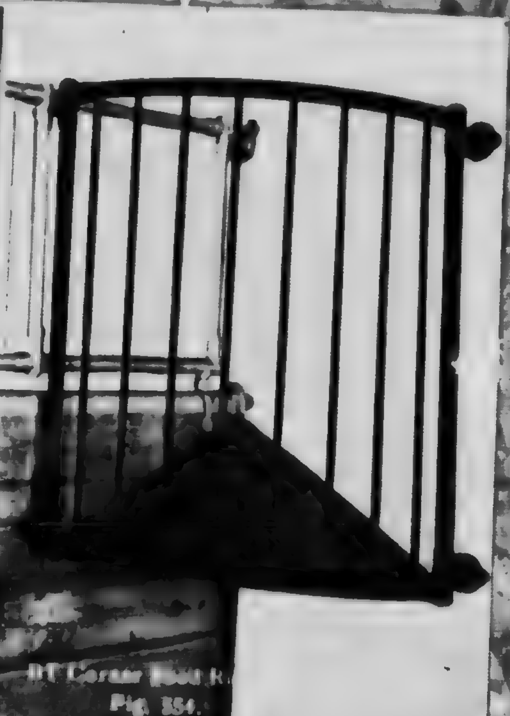
Finish—The Oat Bowl is finished in black japan.

Horse Stable of Cranes

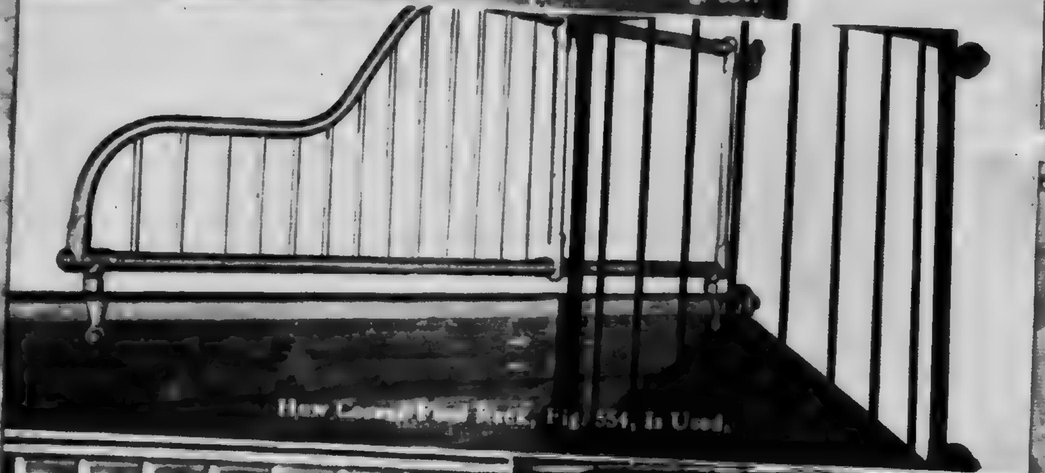
Cranes L ited, Montreal, Quebec.



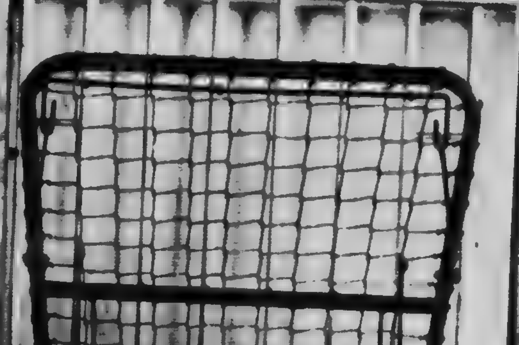
BT Corner Feed Rack for [illegible]
Fig. 302.



BT Corner Feed R[illegible]
Fig. 554.



New Corner Feed Rack, Fig. 554, In Use.



BT Spring Feed Rack, Fig. 264

Spring Feed Rack In Use

Corner Feed Rack for Box Stalls—Fig. 302

(Shuffle)

The Corner Feed Rack for Box Stalls may be used in any corner of the box stall and placed as high above the floor as desired. It is usually as high as the horse's head. It is intended for nothing but hay, which can be thrown down into it through a chute.

The horse must pull the hay from between the rods, so he cannot bolt his feed. He is also prevented from pulling it out over the floor.

An ornamental and perforated bottom allows dust and chaff to escape. The rack projects from the wall a distance of 18 inches at the top and 12 inches at bottom.

It is 3 feet 4 inches high, six 5/8-inch steel rods being used. These are held in a grey iron frame. Rods are 5 inches apart, centre to centre at top, and 3 inches at bottom.

The rack is finished in green, and weighs 33 pounds.

All Steel Corner Feed Rack—Fig. 554

(Splash)

The all steel Corner Feed Rack is placed in the corner of the stall, the stall guard forming one side and the wall another.

It is made of 9/16 inch steel rods, secured above and below in a frame of 1 1/4 inch steel tubing, with special malleable iron clamps to attach to the wall and stall guard.

Rods are 4 inches apart, centre to centre.

The bottom is made of 22 gauge galvanized iron and slopes as shown in the photo, to allow dust and chaff to escape.

The rack is 3 feet 4 inches high and projects 30 inches from the wall.

It is galvanized, finished in green and weighs 30 pounds.

BT Spring Hay Rack for Pens—Fig. 264

(Scout)

The BT Spring Hay Rack may be used in horse stalls and also in box stalls for cattle.

It is furnished with two powerful steel coil springs at the bottom, which hold the rack in tension against the feed. A lock holds the rack open until the feed can be put in it.

The purpose of this rack is to prevent the animal wasting or bolting its feed.

The front of rack consists of 3-foot rod panel, frame of which is 1 5/16 inch O.D. solid welded galvanized steel tubing.

It is finished in green and weighs 30 pounds.

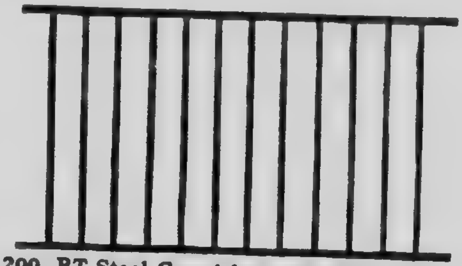


Fig. 299, BT Steel Guard for Box Stall Door (Spiter)

BT Box Stall Door—Page 555

(Shunter)

The BT Box Stall Door is all steel and will stand the abuse a door is likely to receive from the horses, without looking shabby. It is sanitary and very easy to keep clean. The spindle construction allows the sunlight to flood into the stall. Page 198 shows one of the doors in use.

The frame is made of 1⅞ O.D. steel tubing, corners being secured with strong, ornamental, malleable iron clamps. The clamps are entirely dust-proof. They are riveted to the tubing with ⅜-inch rivets. The lower section consists of a panel of 12 gauge steel, 3 feet 6 inches wide and 3 feet deep. 9/16 inch round steel rods set on 3½ inch centres compose the upper section. The lock is made of malleable iron and fastened on one of the gate posts, without requiring a mated casting on the post. When the gate is shut the lock can be secured with a steel pin. The door is 5 feet deep and 3 feet 6 inches wide. It weighs 130 pounds and is finished in green.

BT Steel Guard for Box Stall Door—Fig. 299

(Spiter)

The BT Steel Guard for Box Stall Door is made to be used with a wood door. Instead of having a solid wood door, this steel panel is inserted in the upper part and more sunlight is allowed into the box stall. It is 3 feet wide and 2 feet deep and can be used with door 4 feet wide. It is made of 9/16 inch iron rods held at top and bottom in a ⅛-inch x ½-inch x 2-inch channel. The rods are shouldered and riveted. They are set on 3½-inch centres. This steel guard is finished in green. See illustration at top of this page.

Kicking Plate—Fig. 721

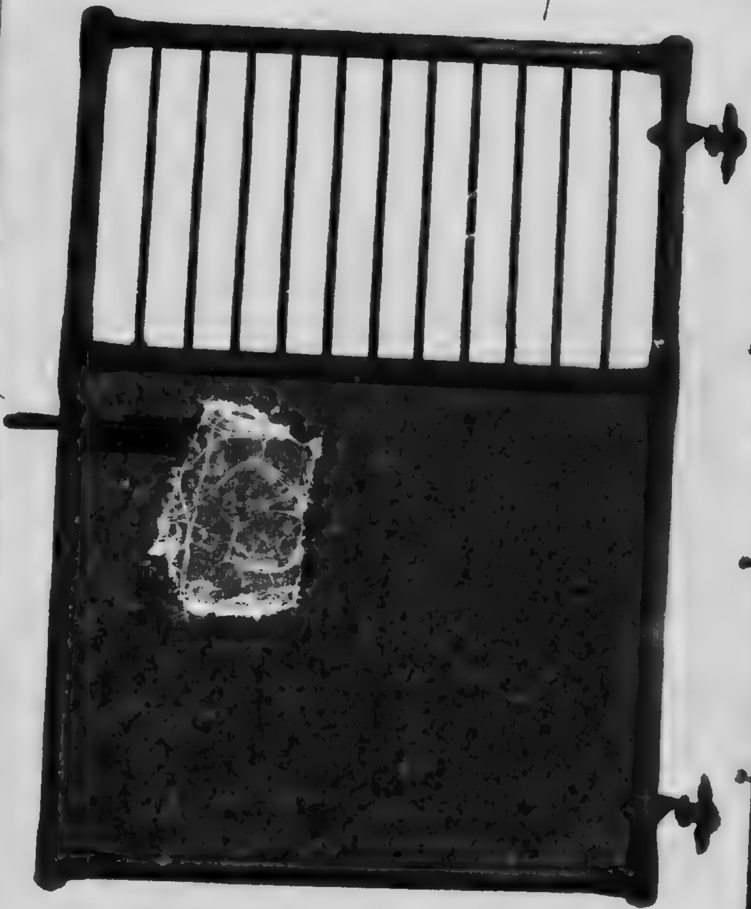
(Spill)

The BT Kicking Plate consists of a sheet of 12 gauge galvanized steel, 3 feet square, two corners being rounded. They are very useful in protecting the woodwork of the stall from being battered by the horse. One is needed for each side of the stall. Each plate weighs 40 pounds.

BT Partition Strips—Fig. 559

(Stagot)

Steel partition strips hold the partition at the front of the stall. They consist of angle iron, ⅛ x 1½-inch and 4 feet 6 inches high. Each strip of the pair is bored with holes at intervals of 12 inches and the holes are staggered, so they really support the partition every 6 inches. ⅜-inch bolts are supplied with the strips. Strips weigh 20 pounds They are finished in green. They are shown on page 221.



1. BT Box Stall Door—Fig. 555.

2. BT Partition Strip—Fig. 559.

3. BT Kicking Plate Fig. 721.

Feeding Through Swinging Panel Front,
Barn of Gordon Gooderham, Clarkson, Ont.

BT Steel Swinging Front—Fig. 556

(Sober)

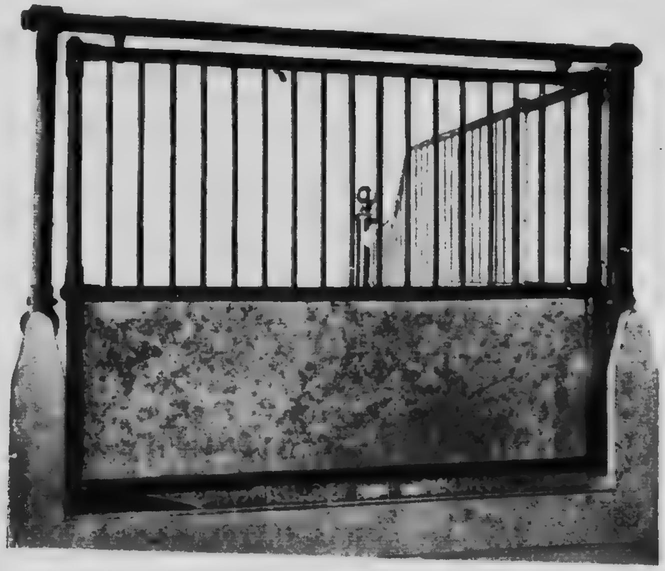
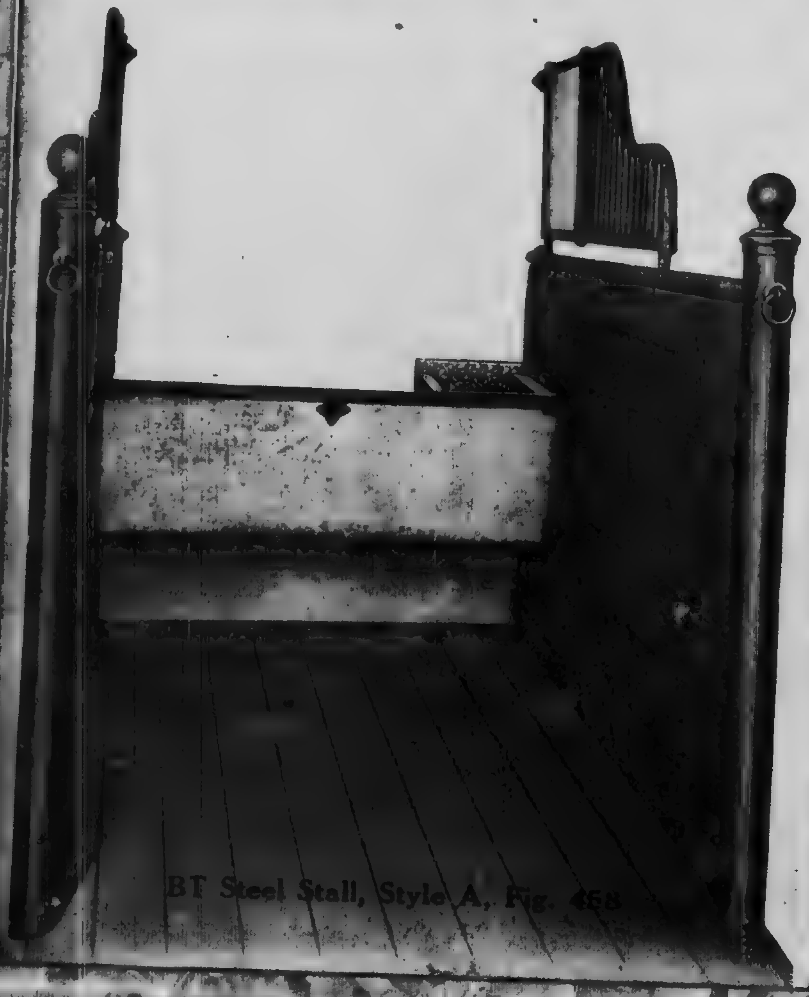


Fig. 556—BT Swinging Steel Front for Horse Stall (Sober)

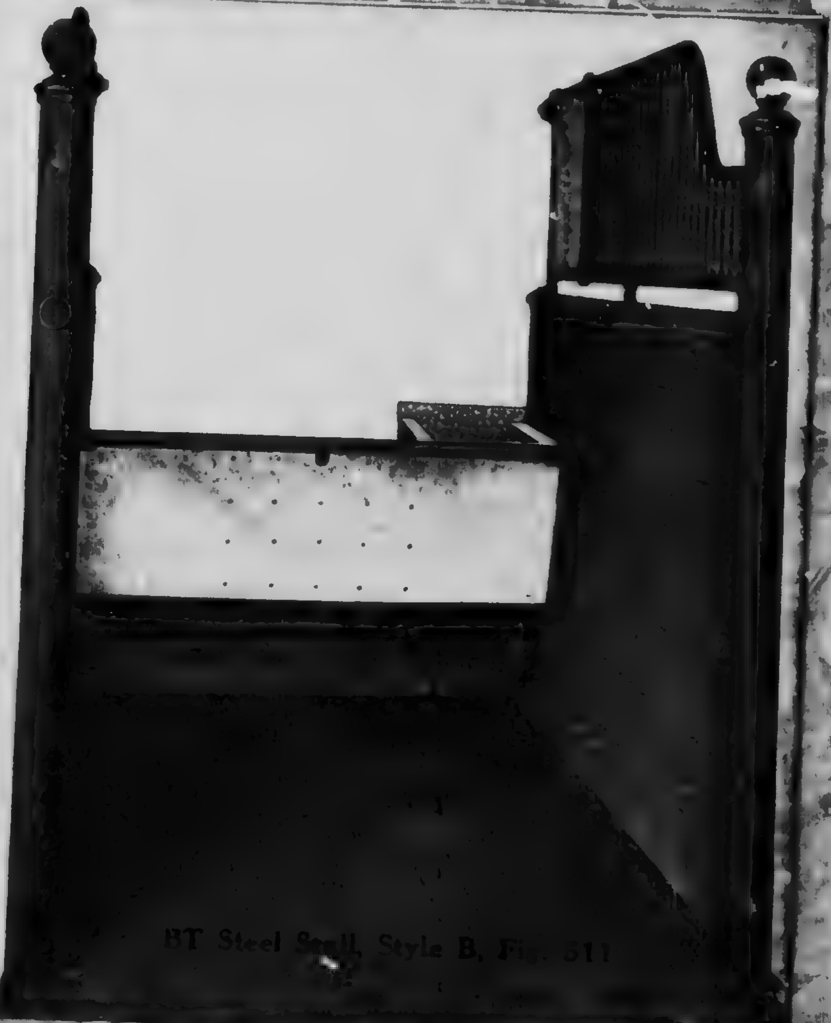
When a row of horse stalls faces a passage and feeding is done in front, a hinged door is necessary in front of the stalls. The old wooden doors which were commonly used were quite untidy, as the horses could crib them. Hinges often came off and the stable did not look respectable. BT Steel Swinging Fronts are not only durable and sanitary, but the spindle construction lets the sunlight flood the stall.

The illustration on page 222 demonstrates what a convenient and handy arrangement the swinging front provides. It takes a considerable amount of time to open the old style wood doors before feeding. It also takes time to brush the chaff and dirt away before closing the doors. If this is not done the hinges bind. All this work is saved by the use of the BT Swinging Front.

Frame is made of $1\frac{5}{16}$ inch O.D. steel tubing, secured at corners with ornamental malleable iron clamps. The bottom section consists of 20 gauge steel sheet and is 18 inches deep. The upper section is formed of $\frac{9}{16}$ inch steel rods, 23 inches long and set on 3 inch centres. A steel frame, consisting of two posts and a headrail, is provided to support the front on the stall. This is made of $1\frac{7}{8}$ inch O.D. galvanized steel tubing. Posts are 26 inches long and the guards of the stall are secured to them. The front is hinged to the headrail. Front for a 5 foot stall is 4 feet 8 inches wide and 3 feet 6 inches high. It is completely finished in green. In ordering specify width of stall. Weight, 80 pounds.



BT Steel Stall, Style A, Fig. 468



BT Steel Stall, Style B, Fig. 511

SPECIFICATIONS

BT Complete Horse Stall Style A—Fig. 458

(Stoat)

Post—1, 5 ft. 6 ins. Stall Post, Fig. 717, page 202.
Post is grooved up 4 ft. 6 ins. from floor, groove being wide enough to take 2 in. dressed plank. Supplied for either cement floor or wood floor. If required for wood floor specify Fig. 543 and state length, viz., 5 ft. 6 ins.
Post is made of 4-inch O.D. full weight, solid welded tubing, finished in green and gold.

Guard—1, Closed Stall Guard, 6 ft. long, Fig. 450, page 207. Guard consists of frame made of 1 5/16 inch O.D. steel tubing with 9-16-inch steel rods set on 3-inch centres. Height 2 ft. 2 ins. A sheet steel panel is furnished at the head of the guard, 2 feet square, and made of 20 gauge material. Clamps for securing guard to partition are sent attached to the guards.

Partition Cap—1, 8 ft. 6 ins length of partition cap, Fig. 557, page 206, to run from front of stall to post. Partition cap is made of heavy U-bar steel, 3/32-inch in thickness, 1⅞ ins. wide and 2 ins. deep.

Manger and Oat Box—1, Fig. 297 Closed Manger for 5 ft. stall. Page 208. Manger is made of 16 gauge galvanized sheet steel reinforced with ⅛ x 1½-inch galvanized flat iron. It is supplied with a hole for tying the horse. Top is reinforced by 1⅞ O.D. Galvanized steel tubing. It measures 4 ft. 10 ins. long, 24 inches wide at top and 21 inches deep.
1, Oat Box, Fig. 589, page 214, It is 8 inches deep, 12 inches wide and 20 inches long, and is made of 16 gauge galvanized steel.

Partition Strips—One pair, Fig. 559, page 221. These attach the partition to the front of the stall. Partition strips are made of angle iron ⅛ x 1½ inch and are 4 ft. 6 ins. long. ⅜ bolts for attaching strips to front and partition are included.

BT Complete Horse Stall, Style B—Fig. 511

(Stool)

Post—1, 6 ft. 6 in. stall post, Fig. 718, page 202. Post is grooved up 4 ft. 6 ins. from the floor, groove being made wide enough to take 2 in. dressed plank. Supplied for either cement or wood floor. If required for wood floor, specify Fig. 543 and state length, viz. 6 ft. 6 ins.
Post is made of 4-inch O.D. full weight solid welded steel tubing and is finished in green and gold.
One 8 inch Harness Hook is attached to the Stall Post.

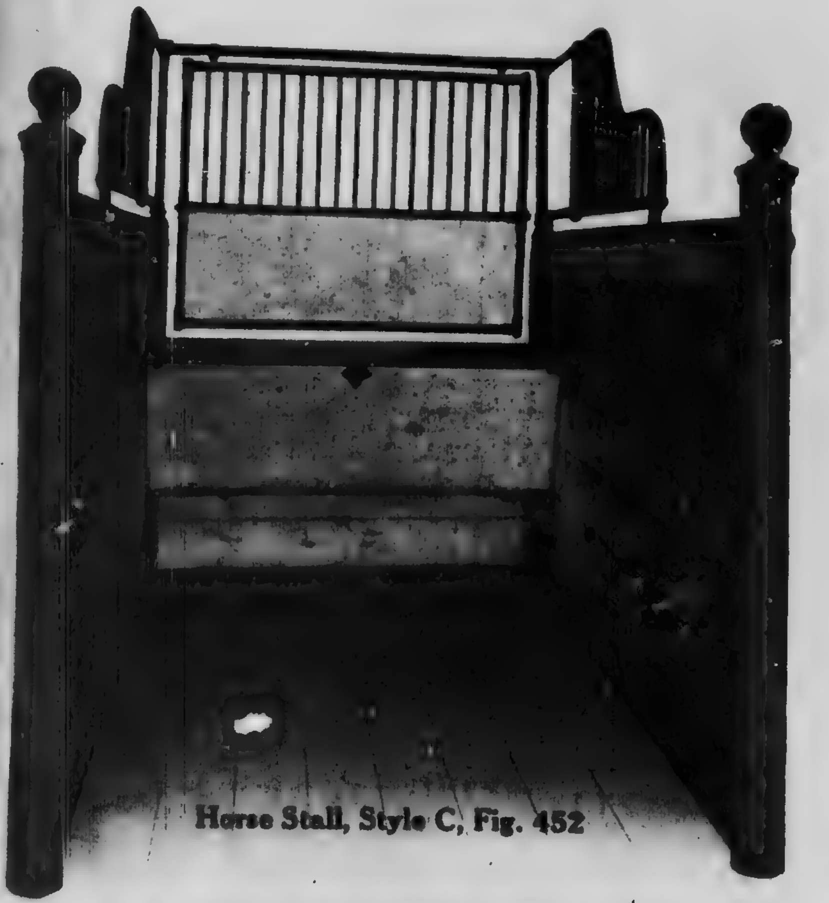
Guard—1, 8 ft. 6 ins. Closed Stall Guard, Fig. 551, page 206. Guard consists of frame made of 1 5/16 ins. O.D. steel tubing, with 9/16 inch steel rods set on 3-inch centres. Height 2 ft. 2 ins. A sheet steel panel is furnished at the head of the guard, 2 ft. square and made of 20 gauge material. Clamps for securing guard to partition are sent attached to the guards.

Partition Cap—1, 8 ft. 6 ins. length of Partition Cap is supplied. Specifications for this are the same as those given above for style A Horse Stall.

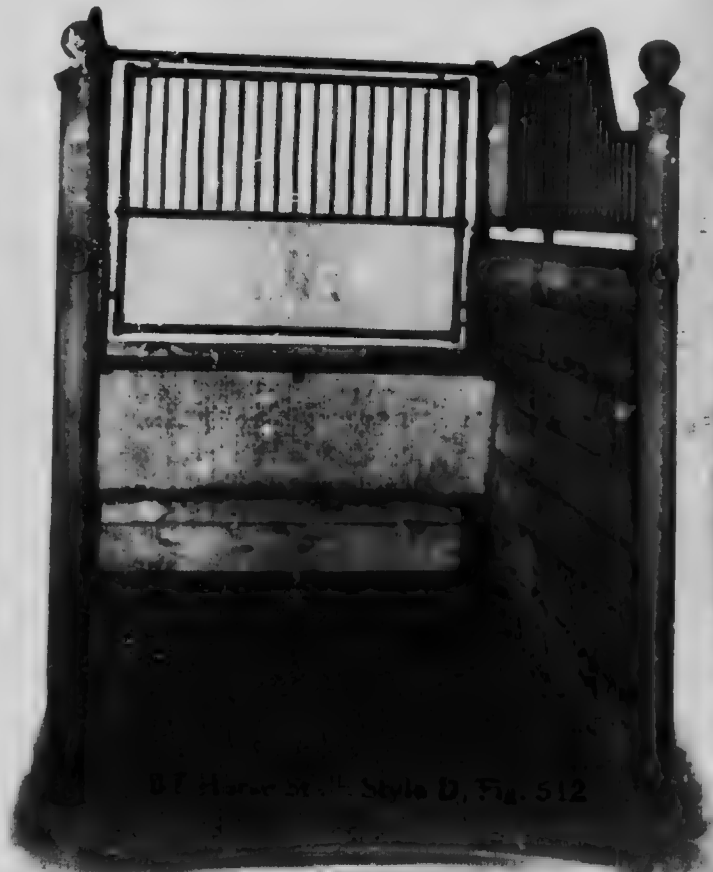
Manger and Oat Box—These items are the same for Style B, as those given above for Style A.

Partition Strips—One pair of partition strips are supplied with Stall B, exactly the same as specified above for Style A.

Note—If the row of stalls has a passage at both ends, an extra post, guard, partition cap and pair of partition strips will be required. If the row runs to a wall at both ends, one post, one guard, one partition cap and one pair of partition strips will be **saved.**



Horse Stall, Style C, Fig. 452



B F Horse Stall, Style D, Fig. 512

SPECIFICATIONS

BT Complete Horse Stall, Style C—Fig. 452

(Stop)

Post—1, 5 ft. 6 ins. Stall Post, Fig. 717, page 202. Post is grooved up 4 ft. 6 ins. from floor, groove being wide enough to take 2 in. dressed plank. Supplied for either cement floor or wood floor. If required for wood floor specify Fig. 543 and state length, viz. 5 ft. 6 ins. Post is made of 4-inch O.D. full weight, solid welded tubing, finished in green and gold.

Guard—1, Closed Stall Guard, 6 ft. long, Fig. 450, page 207. Guard consists of frame made of $1\frac{5}{16}$ inch O.D. steel tubing with 9-16 inch steel rods set on 3-inch centre. Height 2 ft. 2 ins. A sheet steel panel is furnished at the head of the guard, 2 feet square, and made of 20 gauge material. Clamps for securing guard to partition are sent attached to the guards.

Partition Cap—1, 8 ft. 6 ins. length of partition cap, Fig. 557, page 206, to run from front of stall to post. Partition cap is made of heavy U-bar steel, 3/32-inch in thickness, 1⅞ ins. wide and 2 ins. deep.

Manger and Oat Box—1, Fig. 297 Closed Manger for 5 ft. stall, page 208. Manger is made of 16 gauge galvanized sheet steel reinforced with ⅛ x 1½-inch galvanized flat iron. It is supplied with a hole for tying the horse. Top is reinforced by 1⅞ O.D. galvanized steel tubing. It measures 4 ft. 10 ins. long, 24 inches wide at top and 21 inches deep. 1, Oat Box, Fig. 589, page 214, It is 8 inches deep, 12 inches wide and 20 inches long, and is made of 16 gauge galvanized steel.

Partition Strips—One pair, Fig. 559, page 221. These attach the partition to the front of the stall. Partition strips are made of angle iron ⅛ x 1½-inch and are 4 ft. 6 ins. long. ⅜ bolts for attaching strips to front and partition are included.

Swinging Front—1, Swinging Front for 5 ft. Stall. Fig. 556, page 223. Frame is made of $1\frac{5}{16}$ inch O.D. steel tubing. Bottom section is 18 ins. deep and is made of 20 gauge sheet steel. Upper section is made of $\frac{9}{16}$ inch steel rods set on 3-inch centres. The necessary frame consisting of posts and headrail and formed of 1⅞ O.D. steel tubing is provided to hold the swinging panel. Front for a 5 ft. stall is 4 ft. 8 ins. wide and 3 ft. 6 ins. high. All the necessary clamps and hinges are supplied.

BT Complete Horse Stall, Style D—Fig. 512

(Stork)

Post—1, 6 ft. 6 ins. Stall Post, Fig. 718, page 202. Post is grooved up 4 ft. 6 ins. from the floor, groove being made wide enough to take 2 in. dressed plank. Supplied for either cement or wood floor. If required for wood floor, specify Fig. 543 and state length, viz. 6 ft. 6 ins. Post is made of 4-inch O.D. full weight solid welded steel tubing and is finished in green and gold. One 8-inch Harness Hook is attached to the Stall Post.

Guard—1, 8 ft. 6 ins. Closed Stall Guard, Fig. 551, page 206. Guard consists of frame made of $1\frac{5}{16}$ ins. O.D. steel tubing with $\frac{9}{16}$ inch steel rods set on 3-inch centres. Height, 2 ft. 2 ins. A sheet steel panel is furnished at the head of the guard 2 ft. square and made of 20 gauge material. Clamps for securing guard partition are sent attached to the guards.

Partition Cap—1, 8 ft. 6 ins. length of Partition Cap is supplied. Specifications for this are the same as those given above for Style C Horse Stall.

Manger and Oat Box—These items are the same for style B as those given above for Style C.

Partition Strips—One pair of partition strips are supplied with Stall D, exactly the same as specified above for Style C.

Swinging Front—1, Swinging Front for 5 ft. stall. Fig. 556, page 223. Frame is made of $1\frac{5}{16}$ inch O.D. steel tubing. Bottom section is 18 ins. deep and is made of 20 gauge sheet steel. Upper section is made of $\frac{9}{16}$ inch steel rods set on 3-inch centres. The necessary frame, consisting of posts and headrail and formed of 1⅞ O.D. steel tubing, is provided to hold the swinging panel. Front for a 5 ft. stall is 4 ft. 8 ins. wide and 3 ft. 6 ins. high. All the necessary clamps and hinges are supplied.

Note—If the row of stalls has a passage at both ends, an extra post guard, partition cap and pair of partition strips will be required. If the row runs to a wall at both ends, one post, one guard, one partition cap and one pair of partition strips will be saved.

BT Gutter Trap—Fig. 444

(Stress)

Every barn needs a few gutter traps. They should be used at the end of gutters to carry off the water quickly when the stable is being flushed out. The water accumulates quickly in the gutters and a proper trap is needed to carry it away. The BT Gutter Trap is the most sanitary design made. It is impossible for gas to escape. Even if the cover is taken off it is impossible for gas to come up into the stable. For this reason it is a great improvement on the Bell Trap. If, for any reason, the cover on a Bell Trap is left off or is prevented from closing down tightly there is nothing to prevent the gas from pouring up. This is impossible with the BT Gutter Trap. There is also no chance for manure to splash up inside and cake there, thus making an unsanitary hot bed for disease germs.

It is fitted with a double grating to keep out material that might choke the pipes. The lower grate has a ring, by means of which it can be lifted out to clean the trap.

It is made of grey iron and finished in black japan.

Size 10 x 10 inches, and weight is 40 pounds. Size of outlet 4 inches.

BT Manger Drain Pipe Outlet—Fig. 561

(Sandan)

The BT Manger Drain Pipe Outlet is a great convenience in draining the floors after flushing it out. It is made of grey iron, with ground brass cap to prevent rusting. It is also fitted with a grey iron screen which may be readily removed for cleaning. It is made for a 4-inch pipe and weighs 9 pounds.

BT Bell Trap—Fig. 337

(No. 1 Speck; No. 2 Speed)

The BT Bell Trap serves the same purpose as Fig. 444. The photo on page 229 shows how the strainer protects the pipe.

It is made of grey iron and finished in black japan.

There are two sizes: No. 1, 6 inch x 6 inch, 2 inch outlet; weight, 12 pounds. No. 2, 12 inch x 12 inch, 4 inch outlet, weight, 24 pounds.

BT Gutter Cover for Cement Gutter—Fig. 560

(Stucco)

The BT Gutter Cover acts as a strainer, which allows only liquids to enter the trap. In this way it keeps the bedding dry. This cover is often laid in the centre of the horse stall as well as behind it. It is made of grey iron and finished in black japan.

Size: 6½ inches wide, ¾ inches thick. It is made in 5 foot lengths and weighs 11 pounds per foot.

BT Drain Pipe Grating—Fig. 339

(No. 1, Spent; No. 2 Soap)

The BT Drain Pipe Grating is made of grey iron and finished in black japan.

There are two sizes: Fig. 339, No. 1, 6 inch x 6 inch, weight 8 pounds. No. 2, 12 x 12 inch, weight 21 pounds.

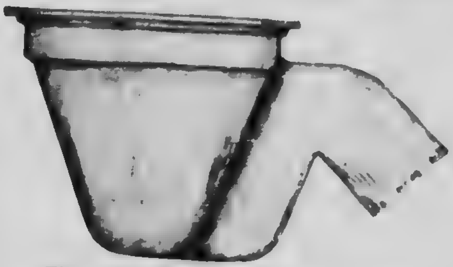


Fig. 444—BT Gutter Trap (Stress)

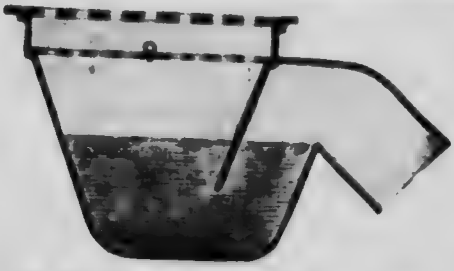


Fig. 444—Cross Section of Gutter Trap

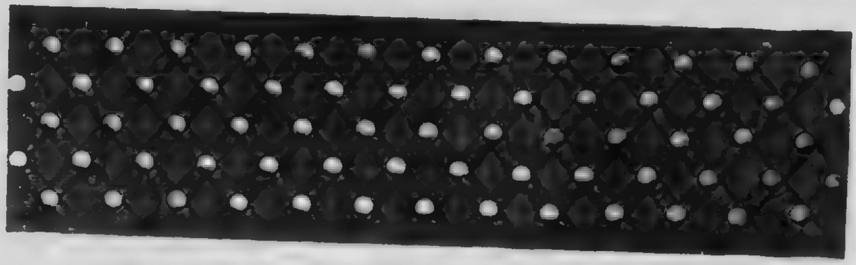


Fig. 560—BT Gutter Cover for Cement Gutter (Stucco)

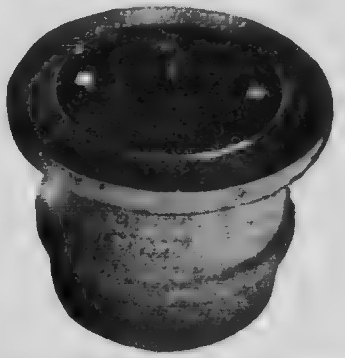


Fig. 561—BT Manger Outlet (Sandan)

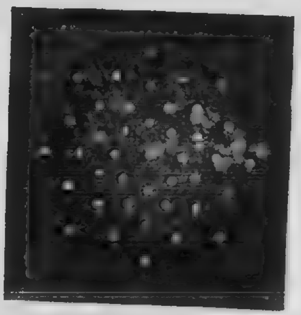


Fig. 339—BT Drain Pipe Grating
No. 1 (Spent), No. 2 (Soap)

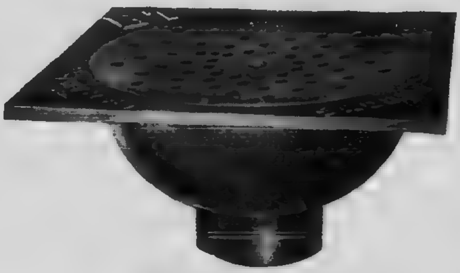


Fig. 337—BT Bell Trap
No. 1 (Speck), No. 2 (Speed)

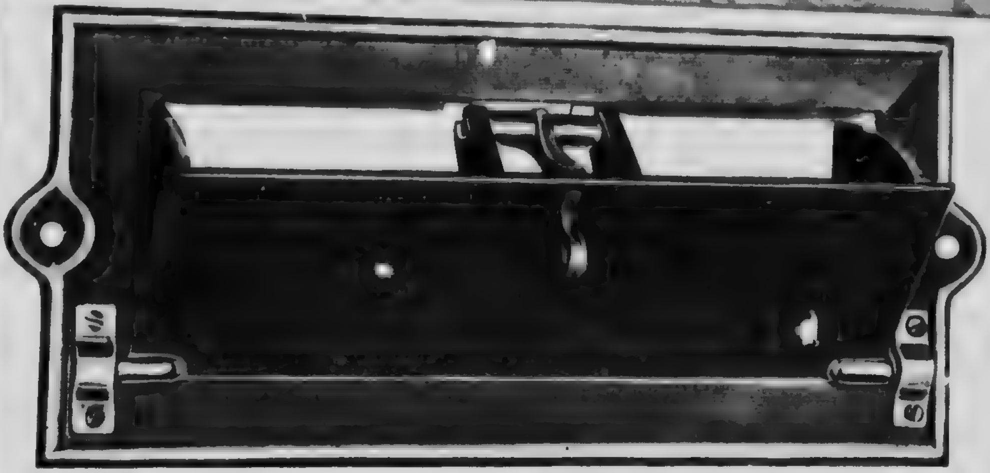


Fig. 336—BT Damper Ventilator (Spark)

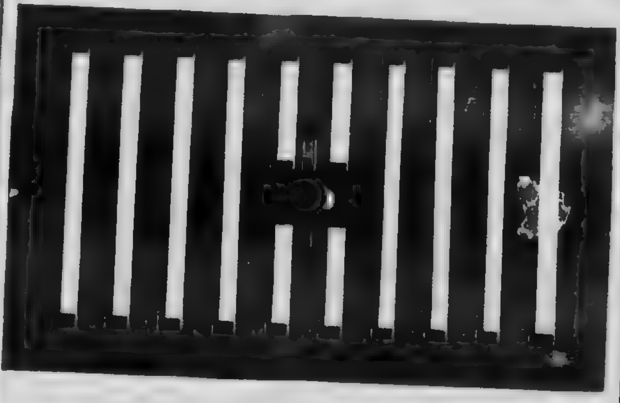


Fig. 335—BT Ventilating Wall Brick
3 in. x 9in. without slide (South)
6 in. x 9 in with slide (Space)
6 in. x 9 in. without slide (Span)

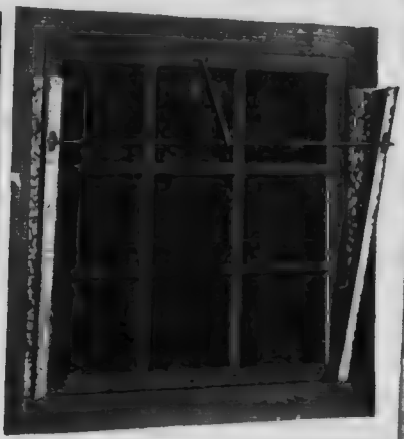


Fig. 268—BT Galvanized Window Shields (Soater)

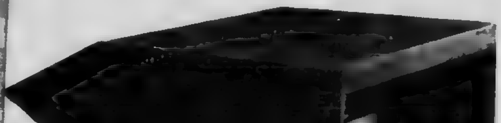
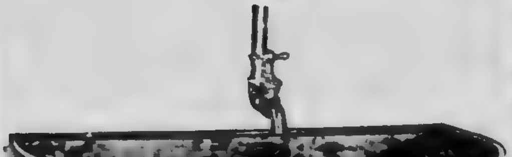


Fig. 445—BT Fresh Air Inlet (Shabby)



No. 1 (Seal)
No. 2 (Sect)
Fig. 497—BT Wall Trough

BT Ventilator—Fig. 336

(Spark)

The BT Ventilator can be put anywhere in the wall or partition. A spring catch keeps it locked, and when this is released the door will drop open. The shape of the damper when open directs the current of air upward so that it will not cause a direct draught. It is made of grey iron.

Size over all, 7 x 15 inches. Size of door 4½ x 12 inches. Size of frame 5 x 13 inches. Finished in black. Weight, 12 pounds.

BT Ventilating Wall Brick—Fig. 335

(No. 1 Sour, No. 2 South, No. 3 Space, No. 4 Span)

The BT Ventilating Wall Brick is made with or without a slide, in two sizes. It is grey iron, finished in black japan.

Fig. 335, No. 1, 3 inch x 9 inch, with slide, 3 pounds; No. 2, 3 inch x 9 inch without slide, 2½ pounds; No. 3, 6 inch x 9 inch, with slide 5½ pounds; No. 4, 6 inch x 9 inch, without slide, 4½ pounds.

BT Fresh Air Inlet—Fig. 445

(Shabby)

The BT Fresh Air Inlet is used for introducing fresh air into the stable, according to the Rutherford System. The ventilator is shaped to direct the air current downward, so that there will be no direct draught on the animals. It is fitted with a damper, so that it may be wholly or partially closed when not in use. On the outside there is a hood to keep out snow and rain, and a screen. The ventilator should be set with bottom level with the floor, which brings the opening 8 inches above the floor.

It is made of 24 gauge galvanized steel and has a maximum inlet area of 48 square inches. This provides sufficient fresh air for five full grown horses. It weighs 7 pounds. See the ventilation article which commences on page 36, blue print drawing on page 43, and the ventilation tables at the foot of page 39.

BT Galvanized Window Shield—Fig. 268

(Soater)

BT Window Shields should be used to prevent the draught from blowing directly on the animals. By blocking the space between window and wall, the current of air is directed upwards, so that the stock are in no direct draught. A set of window shields consists of two shields, made of 20 gauge galvanized steel, 10 inches wide at the top and 7/8-inch wide at the bottom. These are braced and strengthened across the front by a 5/16 inch steel rod.

In ordering state the height of the window, so that shields will be made the correct length.

BT Wall Trough—Fig. 497

(No. 1 Seal, No. 2, Sect)

A great deal of time can be saved by watering the horses in the stable. The BT Wall Trough is used for this purpose. It is generally placed along the wall behind the row of stalls, just inside the door.

A pipe may be brought down from the overhead supply tank and fitted

(Further information regarding Fig. 497 will be found on page 235)

BARN OF JAS. DUNSMUIR ESQ
HATLEY PARK VICTORIA, B.C.

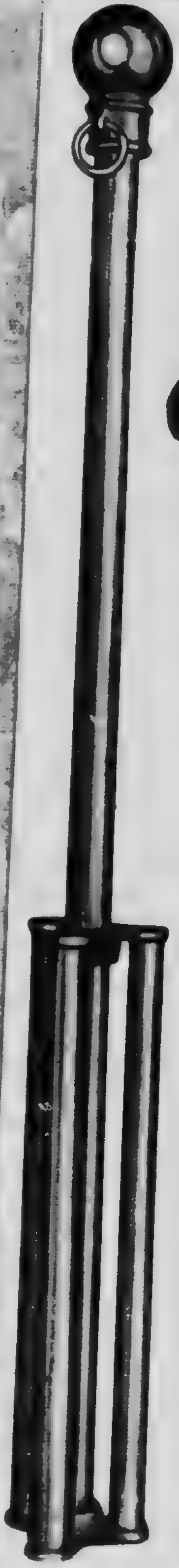


Fig. 509
BT Galvanized gas pipe Hitching Post
(Saunter)

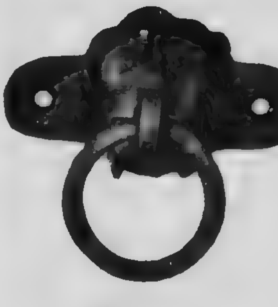


Fig. 342
BT Hitching Ring
(Smite)

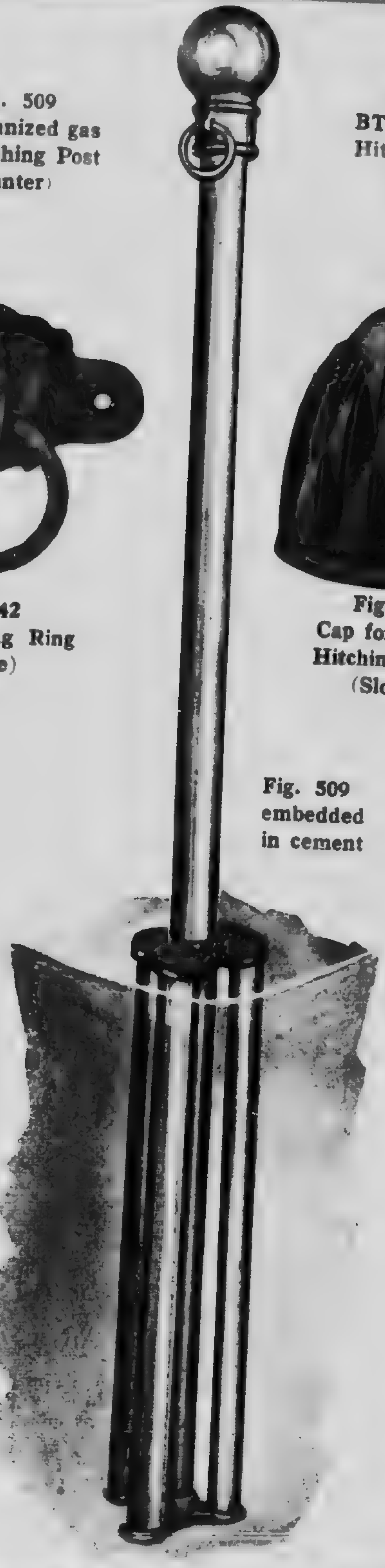


Fig. 509
embedded
in cement

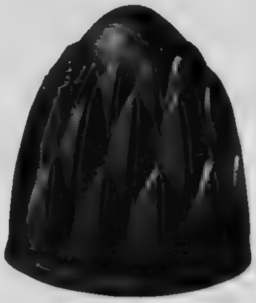


Fig. 344
Cap for Wood
Hitching Post
(Slope)

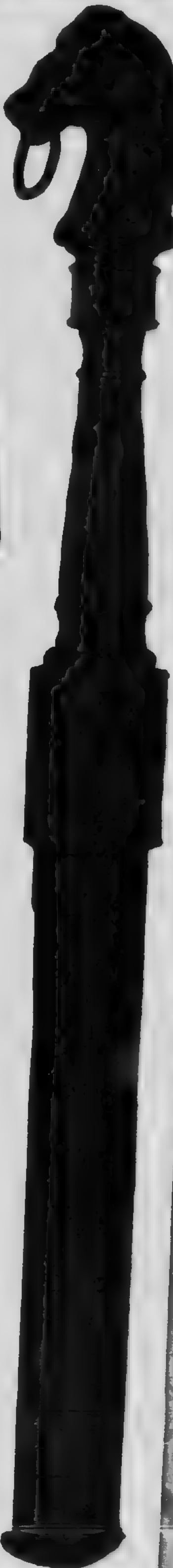


Fig. 343
BT Cast Iron
Hitching Post
(Smack)

with a tap just above the tank. There is an overflow outlet at the top of the trough, with a double screen. This is usually placed at the back of the trough as shown, and the overflow pipe put through the wall or partition behind.

In cases where the BT Wall Trough is attached to a stone or concrete wall, or in any position where it is not convenient to tap the wall behind, the overflow pipe can be connected through the bottom of the trough instead of at the back and run down to a drain.

In ordering, specify either a back or bottom overflow outlet, and we will tap the trough at the proper place. Unless specified, the trough is shipped without being tapped. It is made of 20 gauge galvanized iron; the upper edge is rolled over a wire and the trough is well soldered. It is supported on a frame of 2 x ¼-inch galvanized flat iron, and there is a heavy angle iron frame on each side to attach to the wall.

Made in two sizes: No. 1, 25 inches wide and 14 inches deep, projecting 12 inches from wall; No. 2, 30 inches wide and 18 inches deep, projecting 12 inches from wall. No. 1 weighs 20 pounds; No. 2, 25 pounds. Water-tested before leaving factory.

BT Hitching Post—Fig. 509

(Saunter)

Rotting wood posts, or wood posts with tomato cans for tops; rusty, twisted steel posts, do not improve the appearance of any building.

The BT Hitching Post, Fig. 509, is not expensive It has a round, ornamental cap and a tie ring.

It is made of 2⅜-inch O.D. solid welded steel tubing, and has a heavy anchor to hold it firmly in the ground. The anchor consists of three upright lengths 1⅞ inch O.D. steel tubing fastened to the post by heavy castings.

The post weighs 62 pounds. It is galvanized and finished in grey enamel. It is 6 feet long and is embedded a distance of 2½ feet in the ground.

BT Cast Iron Hitching Post—Fig. 343

(Smack)

The BT Cast Iron Hitching Post is more ornamental than Fig. 509, and a little more expensive. It is made of grey iron and finished with green paint.

It is 6 feet long, being embedded a distance of 3 feet in the ground. It weighs 88 pounds.

BT Hitching Ring—Fig. 342

(Smite)

The BT Hitching Ring is a neat tie ring, to be attached to a wood post with lag screws or bolts. The plate is made of grey iron, and the ring of ⅜-inch round iron.

It is finished in black japan. It weighs half a pound.

BT Cap for Wood Hitching Post—Fig. 344

(Slope)

The end of the post should be shaped to suit the shape of the cap which will then fit snugly and can be secured with nails to the wood. It is painted green.

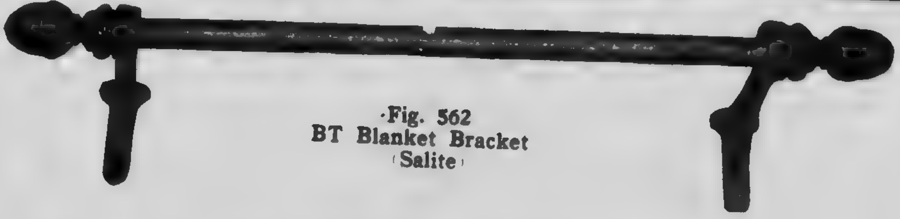


Fig. 562
BT Blanket Bracket
(Salite)

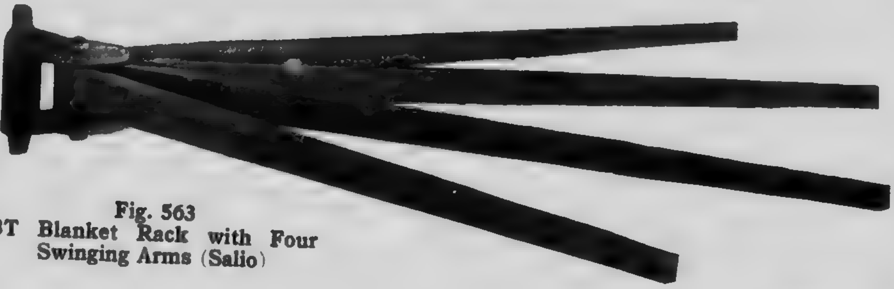


Fig. 563
BT Blanket Rack with Four Swinging Arms (Salio)

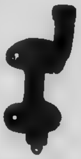


Fig. 340
BT 8-inch Harness Peg
(Soar)

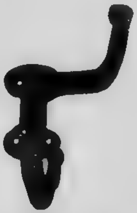


Fig. 341
BT 12-inch Harness Peg
(Smock)

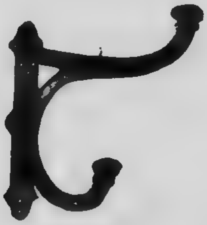


Fig. 565
BT 14-inch Harness Peg
(Sunder)

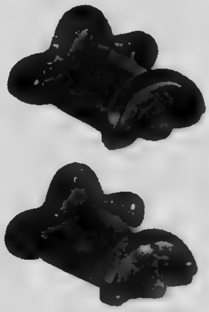


Fig. 566
BT Rein Bracket
(Sally)

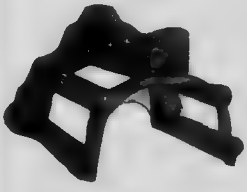


Fig. 567
BT Harness Collar Bracket
(Sam)

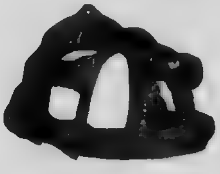


Fig. 568
BT Harness Bridle Bracket
(Sammy)

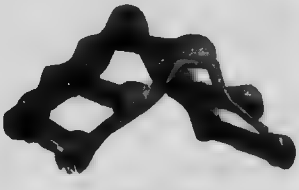


Fig. 569
BT Harness Saddle Bracket
(Sana)

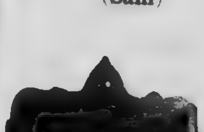


Fig. 571
BT Soap Box
(Sanal)

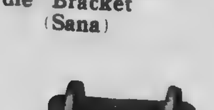


Fig. 570
BT Implement Hook
(Sanda)

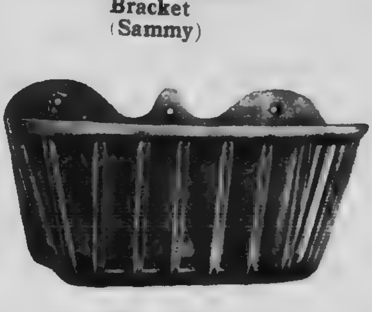


Fig. 572
BT Sponge Rack (Sand)

BT Blanket Bracket—Fig. 562

(Salite)

The BT Blanket Bracket is fitted with iron brackets. and 3-foot roller with heavy ornaments at each end. The metal is painted green, the wood varnished. Weight 5 pounds.

BT Blanket Rack with Four Swinging Arms—Fig. 563

(Salio)

The BT Blanket Rack is a great convenience in the stable. There are four swinging arms to receive blankets, and each is secured in a metal socket. This bracket will carry the heaviest blankets.

The arms are each 4 feet long, made of nicely varnished Georgia pine.

All metal parts are painted green. Weight 44 pounds.

BT Harness Pegs—Figs. 340, 341, 565

(Fig. 340 Soar, Fig. 341 Smock, Fig. 565 Sunder)

BT Harness Pegs are made in three sizes: 8 inch, Fig. 340; 12 inch, Fig. 341; 14 inch, Fig. 565.

The 8 inch and 12 inch sizes are made of malleable iron, the 14 inch of grey iron.

They are finished same as horse stalls.

BT Ventilating Harness Brackets

The framework of the BT Ventilating Harness Brackets is iron, painted green with polished mahogany cappings.

BT Rein Brackets (one pair), Fig. 566, weight ½ pound (Sally).

BT Collar Bracket, Fig. 567, weight 5 pounds, (Sam).

BT Bridle Bracket, Fig. 568, weight 5 pounds, (Sammy).

BT Saddle Bracket, Fig. 569, weight 6½ pounds. (Sana).

BT Implement Hook—Fig. 570

(Sanda)

The BT Implement Hook is used for hanging shovel, broom or fork.

It is a grey iron casting, drilled for two ⅜-inch lag screws, and painted green. It weighs 2 pounds.

BT Soap Box—Fig. 571

(Sanal)

The BT Soap Box has a grated bottom which keeps the box free of moisture.

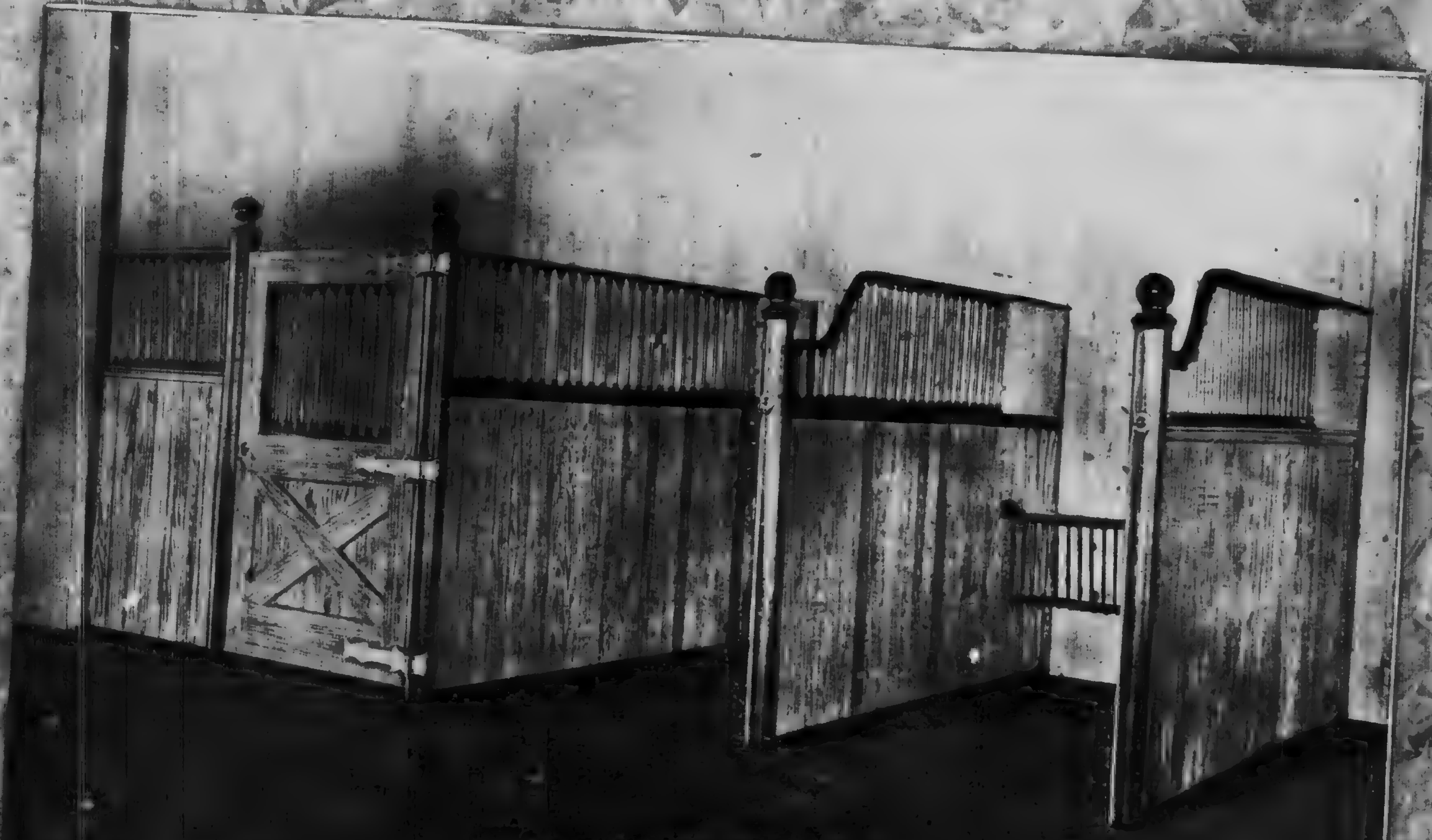
Made of grey iron, finished green and weighs 1 pound.

BT Sponge Rack—Fig. 572

(Sand)

The BT Sponge Rack is a convenient and sanitary place for the sponge. The bottom is grated to allow moisture to drain away.

It is made of grey iron, finished in green and weighs 9½ pounds.



BT Heavy Fittings for Horse Stalls

Heavy Ornamental Horse Stable Fittings

The illustrations on pages 232, 233 and 238 give an idea of the splendid appearance of these fittings in the horse stable. In ordering kindly refer to figure numbers.

Guards

Heavy Guard, Fig. 573 (Sob), for tie-up stalls: This is shown on page 238. Rods are ¾-inch steel, with ornamental ferrule at the top and bottom. Sheet iron panel, 2 feet square, is furnished at the head of the guard. Main frame is made of 2 inch x ½ inch channel, and is capped with ⅛ inch x 2 inch band iron, which is bolted to main frame. Painted green. Weight per foot, 18 pounds.

Heavy Guard, Fig. 574 (Sobber), for box stalls. This is shown on pages 232, 233 and 238. Rods are ¾-inch steel with ornamental ferrule at top and bottom. Main frame as in Fig. 573. Painted green. Weight per foot, 18 pounds.

Heavy channel for Guards, Fig. 575 (Stick). These channels are suitable for holding the upright siding in box stalls or tie-up stalls, both top and bottom. They should always be purchased with the guards. They are drilled at top and furnished with ⅜ inch bolts, with which they may be secured to guards. At the bottom they are held to the post and wall with bolt anchors. Made of 3/16 inch steel, 2 inch x 2 inch. Painted green. Weight per foot, 3 pounds.

Door

Heavy Box Stall Door, Fig. 558. A heavy box stall door, 4 feet x 6 feet 4 inches, is shown in the photo on page 238. This may be made by use of a special panel 3 feet wide with ¾ inch rods, similar to the guard. Code word for woodwork and guard, without lock and hinges—Salid. For lock and hinges, see below.

Heavy Strap Hinge, Fig. 577. Heavy hinge, made of brass, or malleable iron, of ornamental design, 24 inches long, 18 inches from joint to end. Often three are used on a door. Code words: 24-inch polished brass (Sapper); 18-inch polished brass (Sapley); 18-inch malleable iron (Sappy).

Brass door lock, Fig. 578 (Southy). It is furnished with mortice door bolt and two flush ring handles. It weighs 5 pounds. When ordering state if right or left-hand lock is required.

Post—Fig. 733 (Snuff). This is 5 inch O.D. with regular anchor and round knob cap. It is made in two lengths, 6 ft. 6 inches and 7 ft. 6 inches.

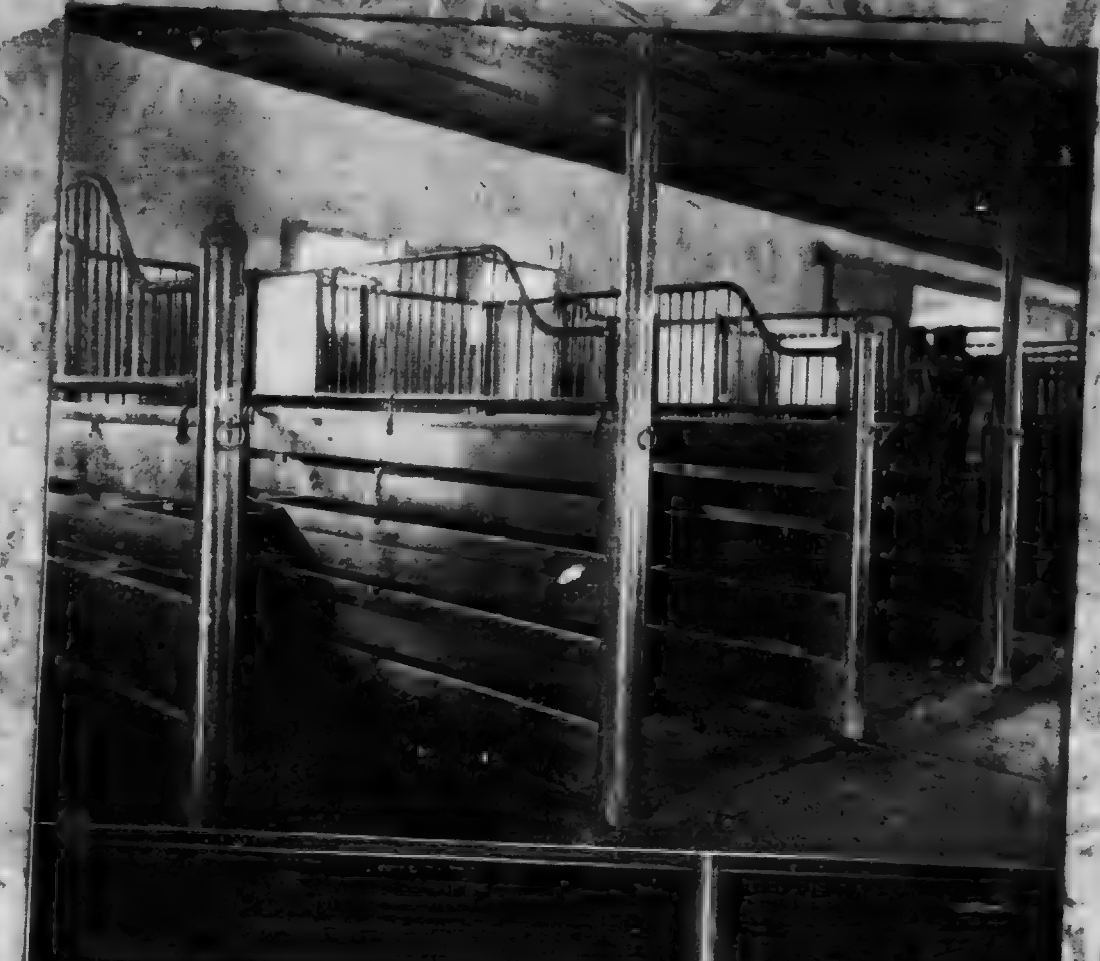
Rings, Mangers, Oat Bowls, Etc.

Brass Ring for Post, Fig. 579 (Somme). Furnished with 3 inch plate and screws for fastening to the post. Made of polished brass. It weighs 2 pounds.

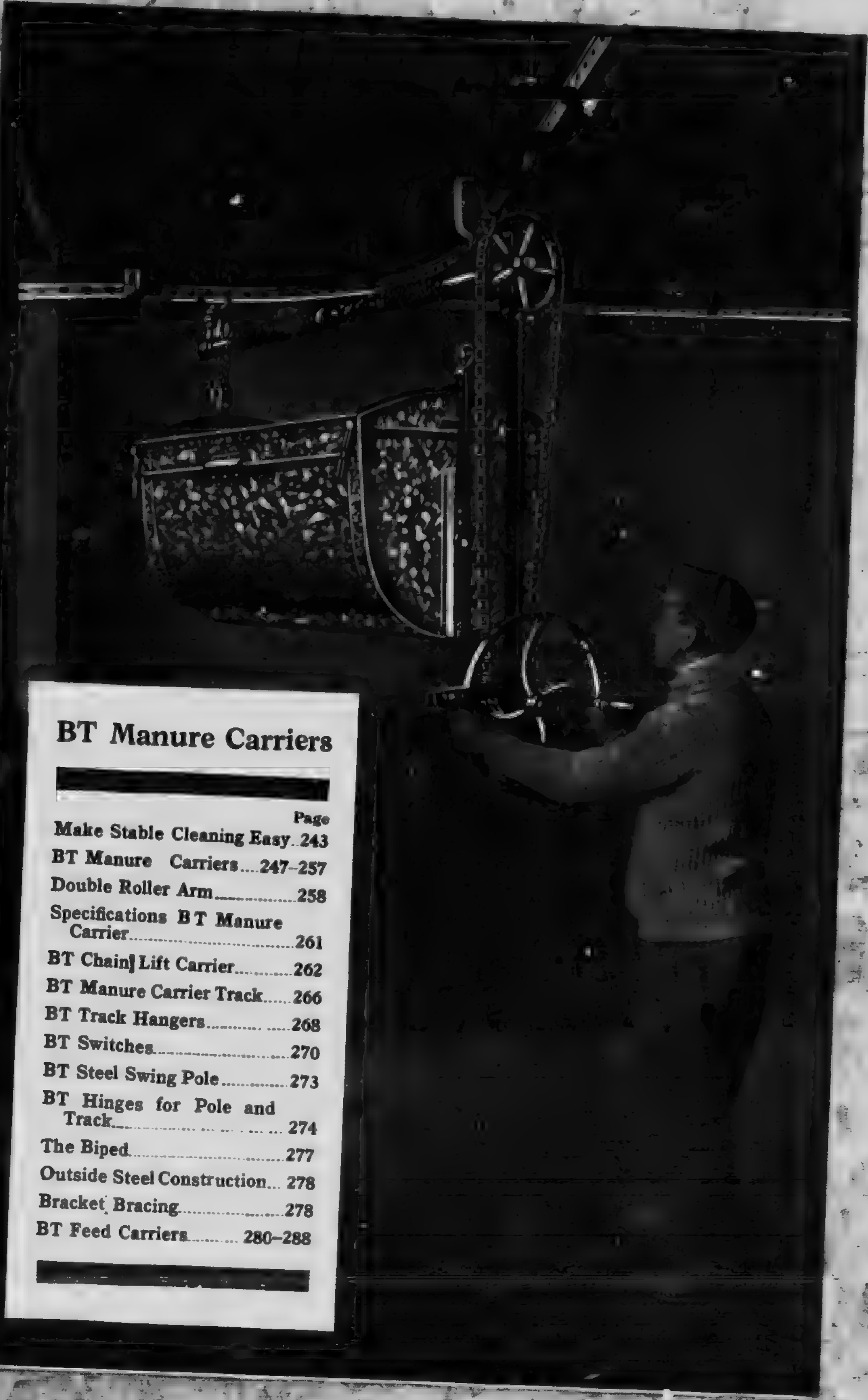
Brass Ring for Guard, Fig. 580 (Sink). Made of polished brass. It weighs 2 pounds.

Porcelain Enamelled Oat Bowl, Fig. 576 (Sinker). It is the same oat bowl as Fig. 301, page 214, but inside is enamelled.

Porcelain Enamelled Manger, Fig. 525 (Sunk). It is the same manger as Fig. 296, page 210, but inside of oat box is enamelled.



Ventilating Partitions in Horse Stable of Walker Sons, Limited, Walkerville



BT Manure Carriers

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NASTY DRUDGERY

CLEAN AND EASY

A BT Manure Carrier Makes Stable Cleaning Easy

Of all the work on the farm, cleaning the stable is the hardest, the most monotonous and the most disagreeable.

The stable has to be cleaned every day; it's something that cannot be neglected. Every day the same hard, dreary, monotonous work has to be done.

The task of wheeling out barrow-load after barrow-load of manure tries the strength of the strongest man. Particularly is this the case when the yard is muddy or filled with snow. Ploughing through a muddy, slushy and manure-filled barn-yard, with dirt up to the ankles and the wheelbarrow sticking fast in the mud, is enough to make anyone dread cleaning out the stable.

Of course, you are interested in anything which will make this hard work unnecessary.

Because it is quite unnecessary. Just as the binder took the place of the cradle, so improved appliances have taken the place of the wheelbarrow. All this drudgery can be abolished, easily, simply and cheaply.

A BT Manure Carrier will cut in two the time taken to clean out the stable. It will save all the discomfort and hard work of the wheelbarrow method.

BT Manure Carriers are saving work, time and energy on so many farms and are giving such good satisfaction everywhere, that particulars of how they work cannot fail to interest you.

How the BT Manure Carrier Works

The reason the BT Manure Carrier saves so much work is that it runs **overhead.** Conditions on the ground make no difference to it because it is independent of them. It doesn't matter how muddy the barnyard is, nor how much snow has fallen. The BT Manure Carrier runs smoothly on its overhead track over the top of every obstruction.

The overhead steel track is put up in the stable. It runs behind the stalls about two feet back of the gutter. There are switches in the track so that the Carrier can branch out into horse stable, calf pens, pig pens, or in fact any place in the stable where there is cleaning to do. A swinging pole carries the track from the stable door, outside the barn to a distance of thirty or forty feet, or more.

The BT Manure Carrier runs along this level, overhead track. It runs smoothly with the biggest load. Any boy can push it, for all the weight comes on the track and there is no heavy lifting. With a BT Manure Carrier, a child can do the work that once taxed the strength of a man.

Run the carrier behind the stalls; lift the brake on the handwheel and the bucket slips to the floor. It drops close to the gutter so that it can be filled easily and quickly. It is easy to get every speck of manure and every drop of liquid manure into the big, wide-mouthed, water-tight bucket without spilling it or slopping it. To move the carrier along,

B T

just give the bucket a little push with the fork or shovel and it runs on to the next stall. The whole thing is so handy that the job is done in a few minutes. It only takes a moment to run the loaded bucket out along the swing pole into the yard. Pull the trip latch and the big load dumps into the spreader, wagon, or sleigh, or on the pile, just as may be found most convenient.

Carries Big Loads

What can be taken out with a wheelbarrow is nothing compared with the load a BT Manure Carrier will carry. The BT takes eight hundred pounds at a time—four big barrow loads. One trip to the pile is sufficient in most stables, or two or three trips in larger barns. Don't you see how it saves hours and hours of time?

It doesn't matter what state the yard is in. Remember that the BT Manure Carrier runs on a level overhead track. Three feet of snow wouldn't make a particle of difference. The Carrier runs right above the snow out to the end of the swing pole. You can always keep the manure as far from the barn as you please. No paths to shovel in the winter time, no slippery planks to lay in the spring. The BT Manure Carrier has abolished all that sort of thing.

Sometimes it pays to dump into the spreader or sleigh, and haul straight to the field. There is only one handling—loading the Carrier in the stable. The back-breaking work of taking the manure out of the yard in the spring is saved. The danger of losing the value of the manure through fire fanging and leaching and the draining away of liquid manure is avoided in this way. One of the most important features of the BT Manure Carrier is the way it saves this valuable liquid manure. The bucket is water-tight. There is no dripping and spilling as the carrier runs down the passage and through the yard. You can appreciate the saving when you consider that liquid manure is worth $7.00 a ton. Of course, if you have a shed or pit for the manure, the BT Carrier can be dumped there just as easily.

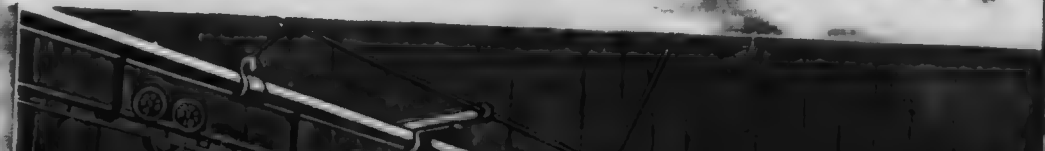
Keeps the Manure away from the Barn

The BT Manure Carrier aids so well in keeping the barn clean that we cannot help but mention the point again. A manure pile close to the barn acts as a breeding place for disease germs and flies, rots the paint and woodwork and makes the stable look unsightly. When so much is being said about tuberculosis and its spread among the cows—largely through liquid manure—the need for cleaning thoroughly and regularly, the need for keeping the passages and the barn yard free from drippings, the need for having the manure always a safe distance from the barn door, cannot be exaggerated. With a BT Manure Carrier Outfit in your barn, you are certain, even when the weather is bad or when the hired man or the boys are in a hurry, that this duty will not be neglected.

Works Noiselessly

A great feature about the BT Outfit is the noiseless running and the quiet way it does the job. The cows are not disturbed, and you must consider this if you are trying to make money from milkers. Sensitive

The old way—digging paths for wheelbarrow



The new way—BT Carrier runs right over the snow drifts. No paths to dig.

cows must not be terrified by trying to draw or back a v[illegible] into the stable. Nothing is as hard on them as the noise of the [illegible]ipping, the starting and the stopping, and the yelling of the dri[illegible]

Then, when you drive into the barn, there is all the trouble of hitching up and often paths to dig in the snow for the horse. You will do the job better, too, with the BT, for there is no littering of manure over the passage. The heavy iron wheels of the cart and the hoofs of the horses break down the finish of the cement and loosen the stonework around the sills of the doors.

Pays for Itself Many Times

Of course, you could do without it. You could do without your plough and binder, too; but, would you dream of such a thing? Remember that a BT Manure Carrier saves as much work in caring for cows as a binder does in handling the wheat crop. Remember that a Manure Carrier is used not for only three or four weeks in the year, but every day as long as your cows are in the barn. It is used not six days in the week, but seven days, for stables have to be cleaned on Sunday, too.

Think of all these things—think of the release from the drudgery of stable cleaning—the increased pleasure in farming and the added interest the boys will have in the barn work—the contentment of hired help, making it easier to get a good man and often making hired help unnecessary—the saving in time—the saving of all the trips backward and forward to the manure pile—the protection of the building from manure, pile fumes and the increased cleanliness of the stable—the preserving of the liquid manure—the quietness in barn cleaning—the carrier paying for itself in saving of work alone in one winter—think of these things and consider if you can afford to do without the BT Manure Carrier any longer.

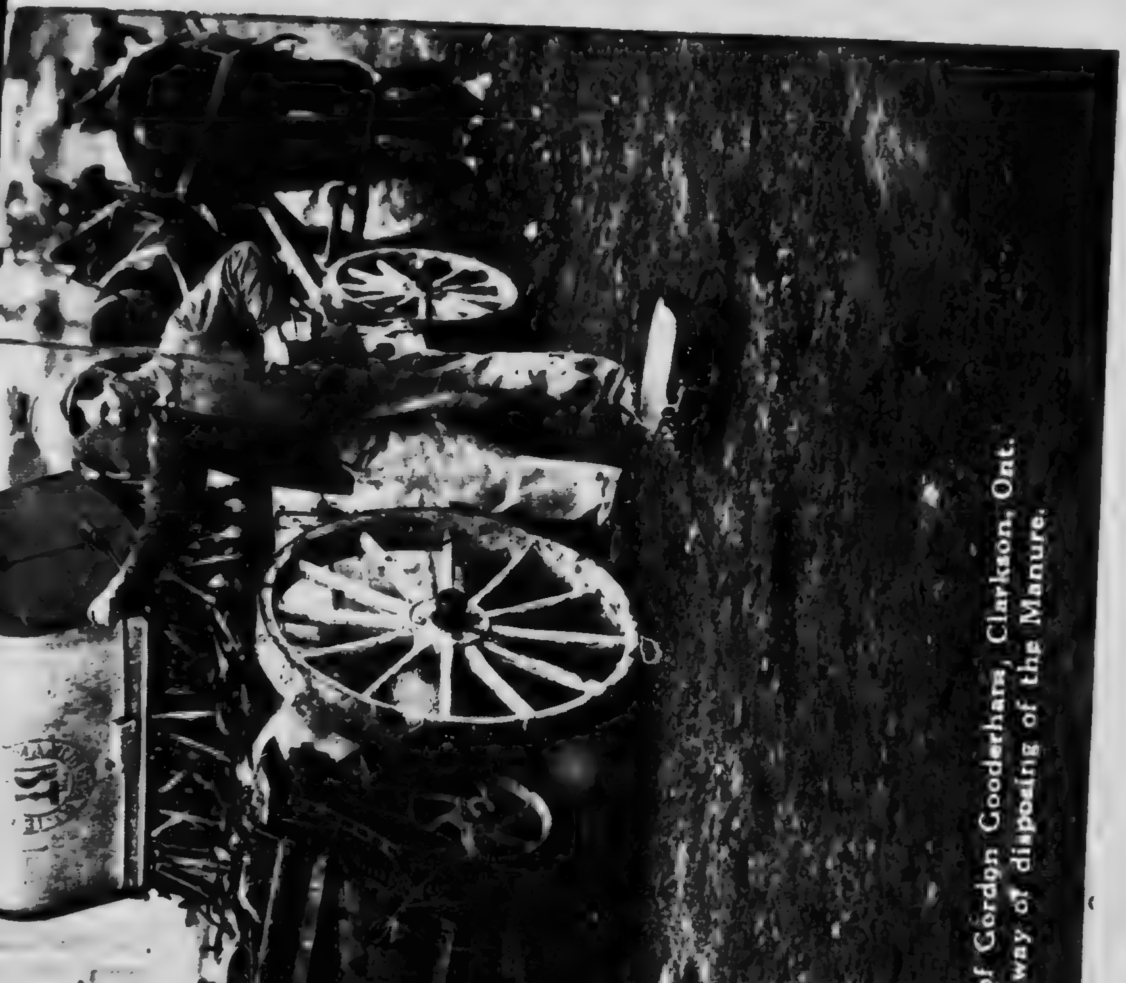
You will get a BT Manure Carrier Outfit some time. The only question is, how long can you stand the cost of doing without? Why not get it now?

The BT Manure Carrier

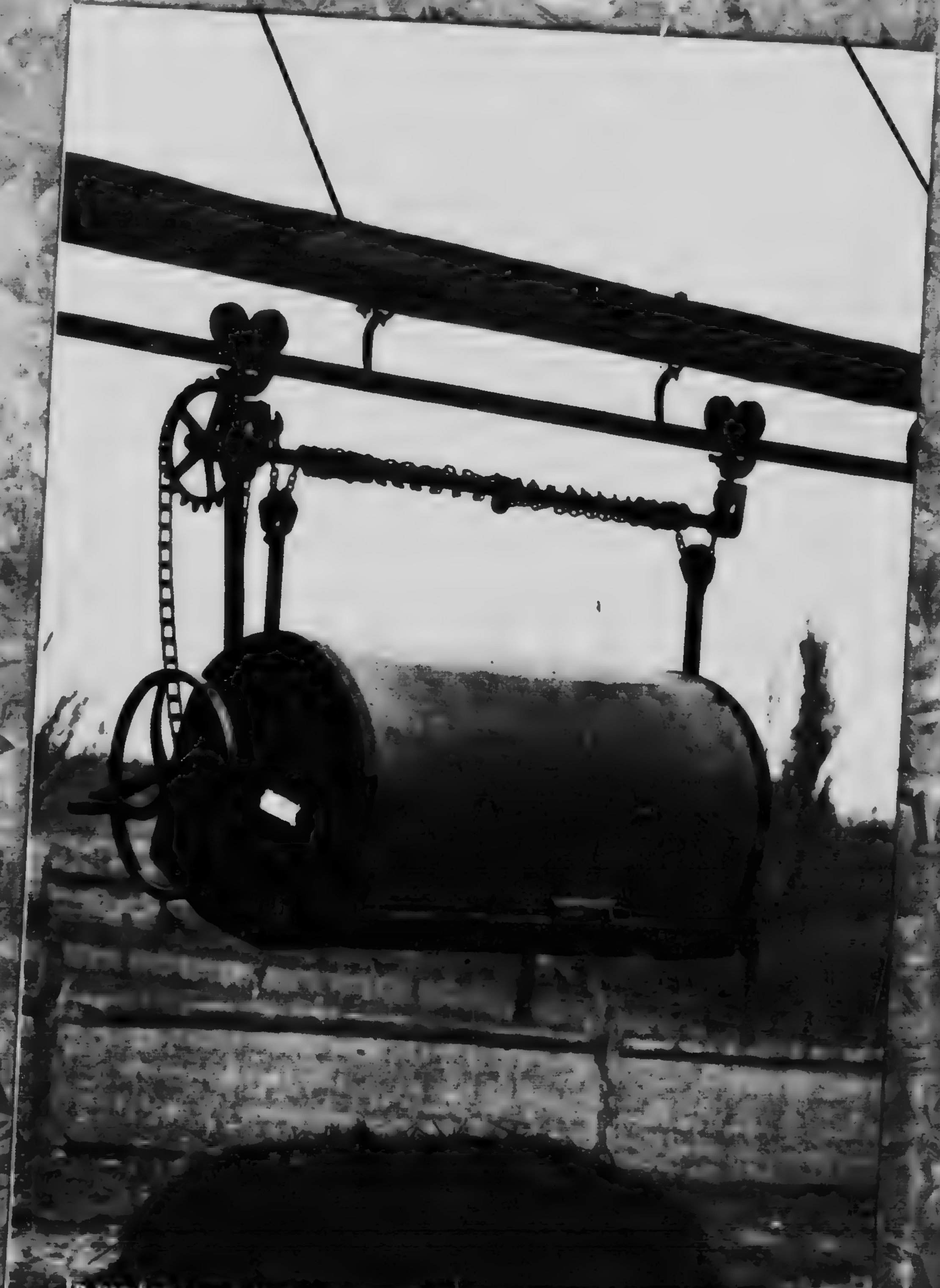
Almost any Manure Carrier is an improvement on the wheelbarrow method. No one has done more to lessen barn work than the man who originated the idea of a Manure Carrier, running smoothly on an overhead track, easily loaded, easily dumped and pushed anywhere with little effort.

The idea is certainly good, but it must be worked out properly. There are certain very important principles, which must be observed in constructing a Manure Carrier, if it is to give permanent satisfaction. A Manure Carrier has hard work to do. It is often loaded to the limit and then banged and jerked around by careless help. Every part must be unusually strong or it will break.

It was with these requirements in mind that we designed every part of the BT Carrier. We know that every part is built to stand up under the hardest use. We have every confidence in the BT Carrier and want you to have the same confidence. In order that you may see exactly what material we use, we have given detailed specifications on page 261.



BT Carrier, Barn of Gordon Gooderham, Clarkson, Ont.
Note this easy way of disposing of the Manure.



In use for more than ten years—BT Carrier in Barn of Roy L. [illegible], Fergus, Ont.

The Reputation of the BT Manure Carrier

The BT Carrier has been on the market over 10 years. The first carriers we sold are still in use and working as well as ever. As a proof of this statement we quote below a letter from Mr. Leslie, who now owns the farm on which one of our very first carriers was installed, over ten years ago.

Beatty Bros. Limited,
Fergus, Ont.

Gentlemen:

The BT Manure Carrier which was installed in the barn when I bought this farm from Mr. Alex Gerrie is still in perfect working order. We use it every day the stock are in the stable, to clean out the manure from about forty head. I have never had to buy a repair for it and it looks as though it would be good for years of use yet.

A neighbor who has another make, installed a couple of years later than the one in my barn, has had to buy two new buckets in that time. I think he is thinking of buying a BT.

Congratulating you on the construction of your carrier,

Yours truly,
R. I. LESLIE.

If we had space we could quote dozens of letters saying much the same thing. There is something worth while in a carrier which will stand up to the hard wear of barn cleaning for over ten years; without a breakdown, without a hitch and without needing a repair.

Strength and Simplicity

Here are a few facts that will show the strength and weight of material in the BT Carrier:

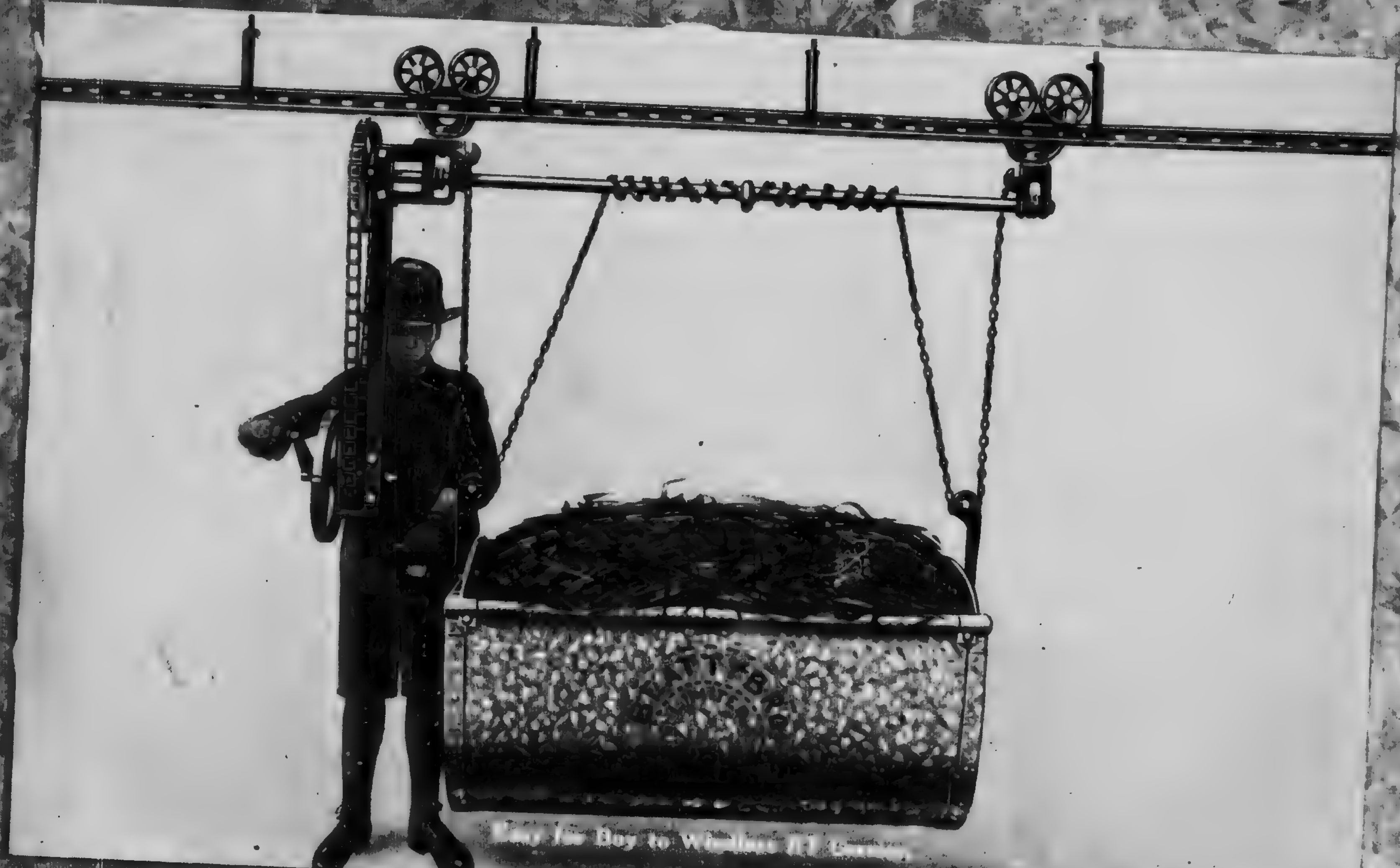
The BT Carrier weighs more than any other carrier—100 pounds more than some. This extra weight all goes into the places where the big strains come. The bucket is made of heavier material. The shaft is made of 1¼ inch solid cold rolled steel, whereas hollow gas pipe is used in many other carriers. The lifting chain will bear a load of 12,000 pounds, which is 20 times as much as it will ever need to carry. The sprocket chain is the same kind of strong sprocket chain used to drive the canvas of a binder.

The simplicity of the construction is noteworthy too. No weight of material is wasted in unnecessary shafts or gears. A Manure Carrier performs a simple operation. There is no need to make it complicated. The fewer parts it has, the better. There will be less wear, less to break, less to get out of adjustment.

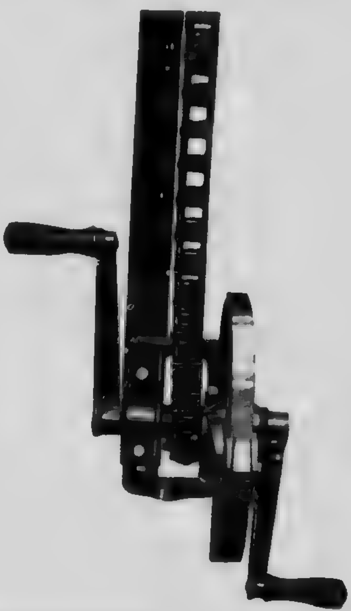
For this reason the BT Carrier is ideal. The simplicity of the lifting and tripping arrangements are covered fully in the following pages. We have said enough here to illustrate the point.

Twice as many BT Carriers are sold annually in Canada as all other makes combined. They are used in the government experimental barns and in the big dairies. As one of the most prominent agriculturists in the country said: "There is only one Manure Carrier, and that is the BT."

Take a little while to notice the method of raising and lowering the BT Carrier. This is shown clearly on pages 252, 254. The handwheel



Easy for Boy to Windlass It Loaded.



The Handwheel Windlass on the BT Manure Carrier

Windlass is shown above in detail. There is no carrier made which can be lifted easily as the BT.

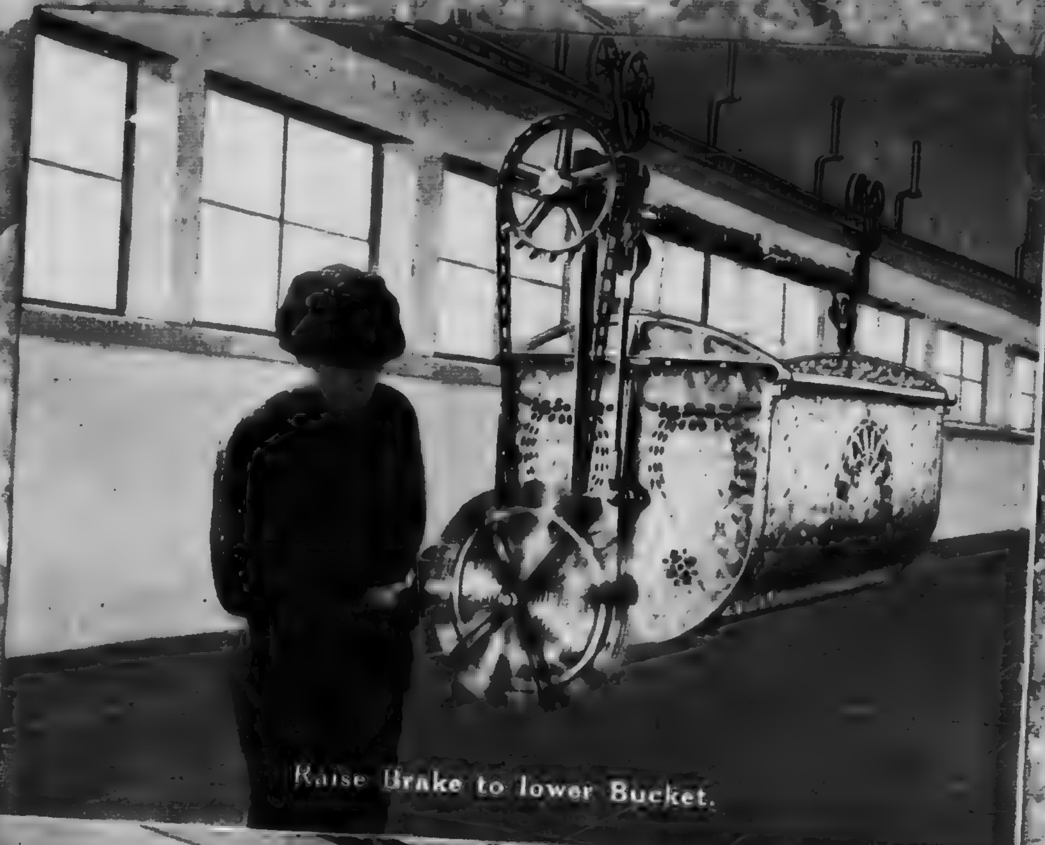
Notice the double handle. Both hands are used at the same time to turn the lower sprocket. No energy or strength is wasted. Even a small boy can raise a heavily loaded BT Carrier. Two hands are better than one: 50 per cent. of the energy used to elevate the carrier is saved. No worm gears are used in the BT Carrier. One set of worm gears wastes from 50 to 75 per cent. of the power applied. Yet some carriers on the market have *three sets*.

The friction in these worm gears is sufficient to hold the loaded bucket without assistance. Imagine, then, the power wasted in raising a load against all that friction. If the friction is enough to hold a loaded carrier with 500 pounds of manure, the friction is equal to 500 pounds. So, as you have probably seen already, when you attempt to raise the bucket you have just double the load. You have the 500 pounds of manure and 500 pounds friction to work against. In all 1,000 pounds of friction.

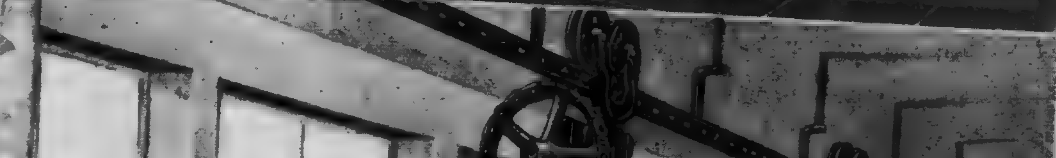
The BT Easy to Raise and Lower

The absence of worm gears (which always cause friction) makes it possible to raise and lower the BT Carrier more easily than any other. This advantage is made still more marked by the double handle on the hand-wheel. A loaded BT Carrier, carrying 500 pounds, can be raised in 25 seconds.

The double handle gives enormous purchase. The manner in which the windlass chain winds on the shaft gives a double lift. The windlass is back geared 35 to 1. That is, 14 pounds pressure on the hand wheel will lift 500 pounds in the bucket. Not only is little friction caused by the working of the sprockets and by the open winding of the windlass



Raise Brake to lower Bucket.



Regulate descent of Bucket by pressing Brake rim on wheel.

chain on the shaft, but friction is further reduced by the pulley on the hanger arm of the bucket, through which the windlass chain runs. This is 2½ inches in diameter, and runs very smoothly on a ¾-inch steel axle. The energy you exert in turning the handwheel of the BT Carrier raises the load and is not expended in overcoming friction.

The handwheel has many advantages for lifting over the chain lift. You can apply power to it evenly until the bucket is raised, while with a chain lift, you lose the time necessary to reach up and grasp the chain. The bucket of the BT Carrier goes up steadily, not in jerks. The hand wheel windlass works without any rattle or noise, which is so objectionable in all chain lifts. The lower sprocket may be moved to take up any slack in the chain, thus making it impossible for wear to affect the lifting apparatus.

Handwheel always Cleans

But, here is the beauty of the handhweel! It is a foot behind the bucket, and held there solidly, so it can't get in the manure. You don't soil your hands when you windlass the BT Carrier. A loose chain, on the other hand, goes swish, swash, into the load in the bucket and is very soon filthy. You can hardly bear to touch it.

The handwheel serves as an excellent handle for running the BT Carrier along the track. It isn't necessary to put your hands on the dung-covered bucket, or into the manure. There is no other choice with a chain-lift Carrier. When you shove on the handwheel, the Carrier runs steadily because you are pushing against the solid frame. You don't touch the swaying bucket. This is one feature which makes impossible the jerky motion peculiar to other Manure Carriers.

The Handy Locking Brake

(Patented)

You don't have to windlass the BT Carrier down. Just lift the brake and the bucket drops in a moment by its own weight. If you want to regulate the speed of the bucket descending, just press on the brake. The bucket will lower just as fast or as slow as you like. This brake acts automatically by preventing the bucket slipping down when you stop turning the handwheel. It holds the load securely at any height you wish. The brake is illustrated on page 254. It is a very simple device. There are no teeth or cogs or ratchets to get out of order. No other Manure Carrier on earth has this feature, as, of course, it is patented.

Lifting Chain Winds in an Open Spiral

Now, study the picture of the BT Carrier on pages 252 and 260. They bring out a vital point in Manure Carrier construction. They show how the lifting chain of the BT Carrier is attached to the centre of the windlass shaft in such a manner that in winding up, it forms a very open spiral. The chain is not injured by rubbing against itself, for it has full length of the shaft on which to wind. The limited winding space on the shafts of some carriers makes it necessary to use a small chain or a cable of insufficient strength, and to crowd it so closely that it is continually climbing upon itself, causing rub and wear.

Being suspended at the centre and both ends, the chain has only one-half the strain that the lifting chain must bear in most carriers. The three-point suspension distributes the load more evenly, and, by giving a double purchase, makes it easier to lift the loaded bucket.

BT Carrier Passes Over Pens.

Easy to Dump

Another great convenience about the BT Carrier is the way in which the bucket dumps. It will tip either way to unload, while most buckets only tip one way. This is a very great advantage, particularly when a wind is blowing. It saves trying to dump the carrier against a high wind.

High Ends

The ends of the BT Bucket are higher than the sides. This one simple feature makes a wonderful difference in the satisfaction the outfit gives.

Liquid manure is generally the last to be loaded. The high ends make it impossible for this to slop over when the carrier is being pushed. They completely prevent the liquid manure from wasting and dripping over the ends all along the passage. A bigger load can be piled on. Also the elevated ends improve the appearance of the carrier.

No Bail

When the BT Carrier is dropped to the floor, there is no horizontal bar across the top of the bucket to interfere with the loading. Some Carriers have this bail, and, as you will readily see, it is constantly catching the manure when you are throwing it into the bucket. It is a nuisance, and it becomes a greater nuisance when the cords inside, which have to do with the tripping, rot and break. No carrier with this cross bar can be elevated close to the track.

High Lift Feature

Because of the single windlass shaft and compact construction, the BT Manure Carrier will lift 8 inches higher than others. It can be windlassed up so that the bottom of the bucket is within 3 feet of the track. The BT Carrier more readily clears the spreader, sleigh or wagon and the manure can be piled higher when it is necessary to allow it to accumulate in the yard. The BT Carrier, when raised, will pass over low pens easily.

The Bucket Hanger Arms

When the BT Bucket is raised, the hanger arms lock in position against the shaft and insure rigidity in running. The windlass chain holding the BT Bucket hangers, being attached at the centre of the shaft as well as at the ends, pulls the hanger arms tight, so they cannot unlock and dump the bucket until you release the tripping latch.

The Tripping Latch

The tripping latch is worked by a single pull on the tripping chain. The spring is made of brass and will not corrode. The tripping latch is protected by the galvanized tubing which reinforces the top of the bucket so that not a particle of manure can get in it. The BT Bucket is self-cleaning when dumped, being round inside and without a corner to collect manure.

It is perfectly water-tight.

Choose the BT

A man, well-known in Canadian agricultural circles, operating more farms than anyone else in this country was solicited five years ago to buy a Manure Carrier. He declared that he would not have one of them on

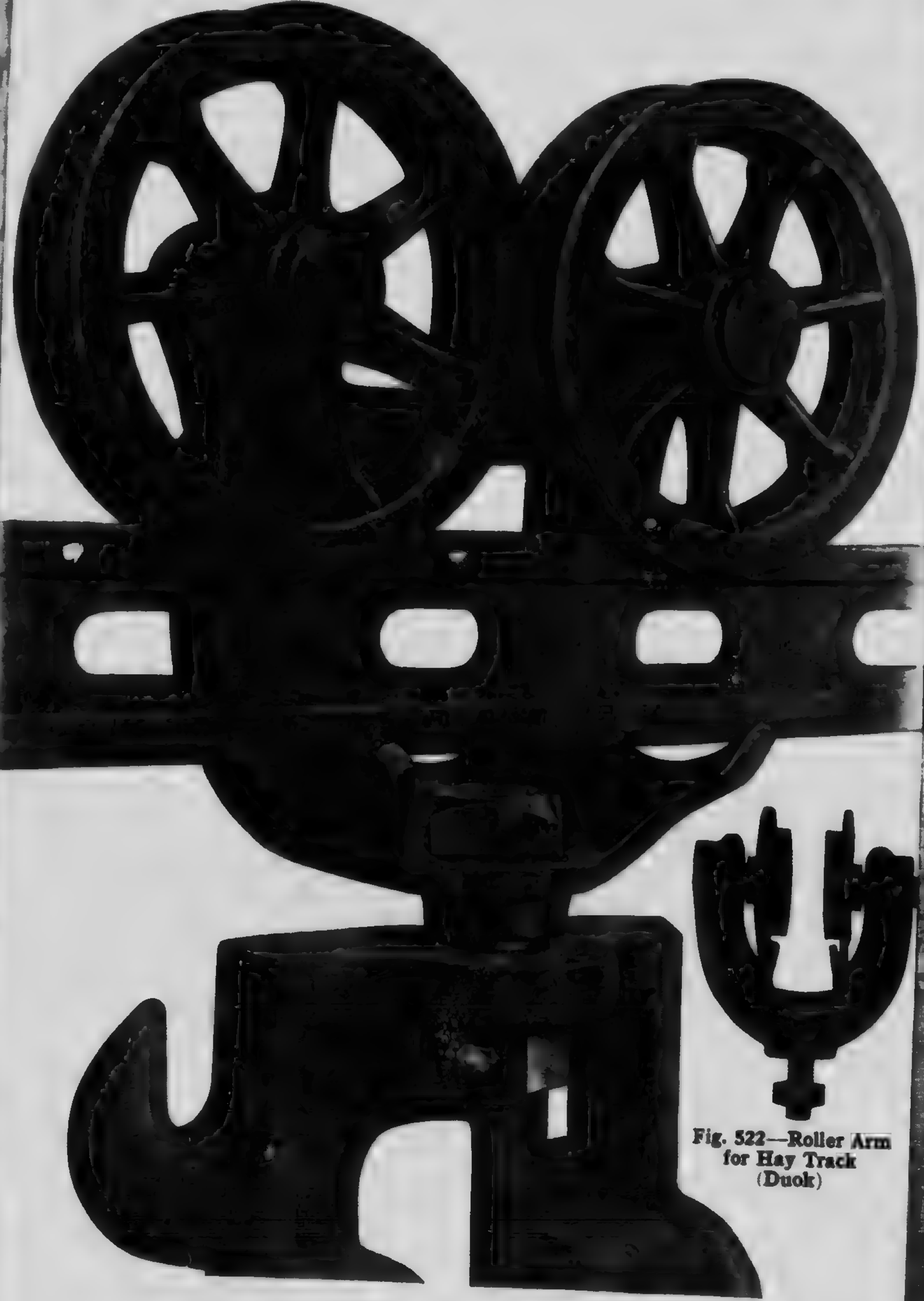


Fig. 522—Roller Arm
for Hay Track
(Duok)

Double Roller Arm and Travellers for BT Track his farm. He had some experience with two Canadian makes, both too light for the heavy work. He finally took the advice of a friend and tried a BT. That man has now six BT Outfits in his different barns, and he has yet to buy a single piece of repairs. There are some Manure Carriers on the market which have done nothing more or less than to give the Manure Carrier business a bad name. If you have ever used or seen an inferior make, do not conclude that all are poor Try the BT Outfit.

The Travellers

The bucket is hung from the track to either end of a malleable iron roller arm, carrying two track wheels or travellers, mounted in tandem. The shaft boxings are held to this roller arm by a ¾-inch bolt, which allows the roller arms to swivel.

This arrangement always keeps the travellers in alignment with the track, making it possible for the Carrier to run round curves just as easily as along the straight track. It does away with any tendency to jerk and insures smooth, easy running.

Every farmer who has ever owned or used one of the older style of Carriers that run on a broad flange track, with the travellers side by side, knows how jerkily and unevenly such a Carrier runs on the track and how hard it is to push.

But how many have ever stopped to figure out the cause of the jerking motion? Perhaps this will explain it:

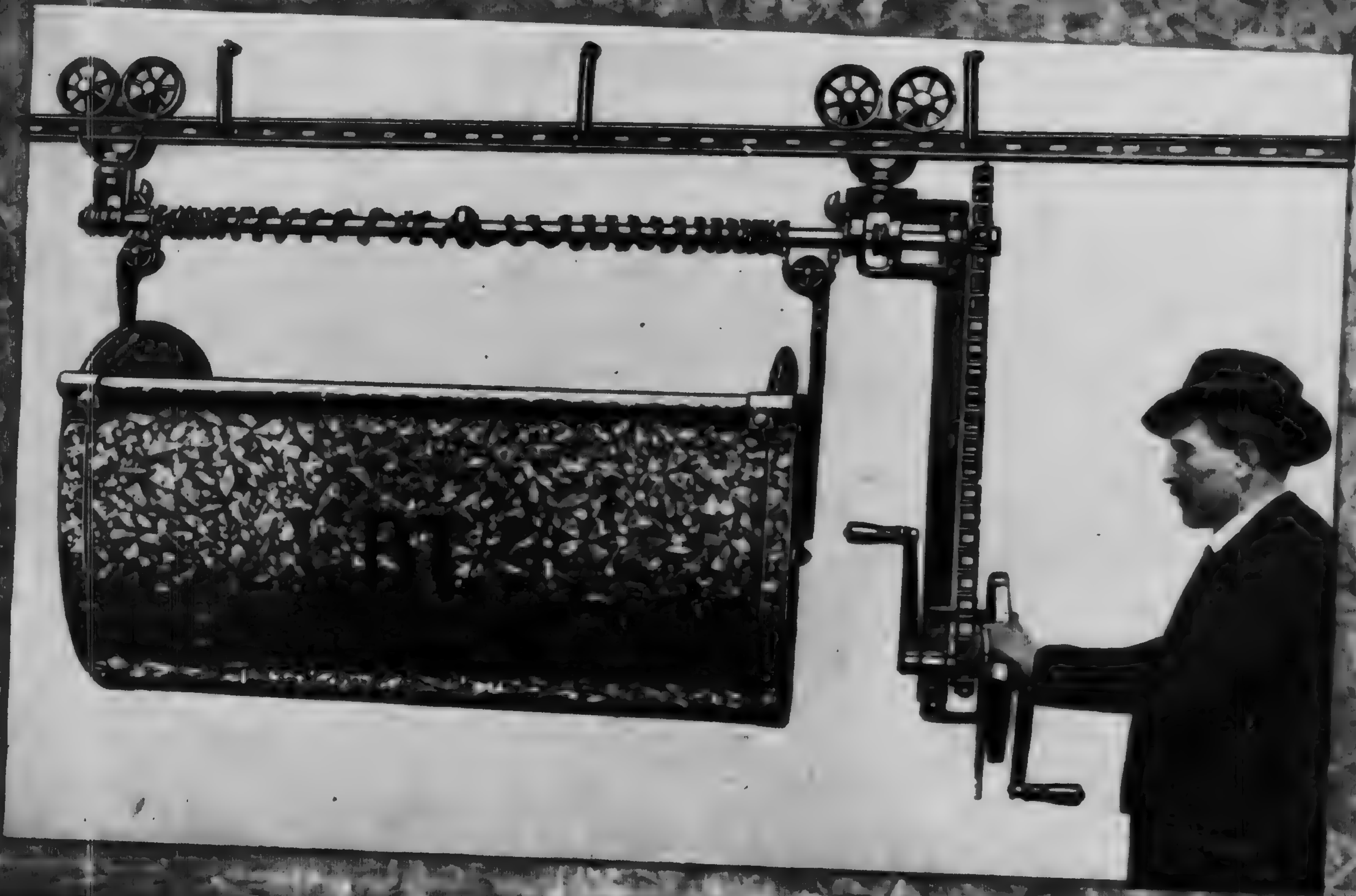
As stated, each roller arm of a carrier is allowed to swivel so that the Carrier will take the curve. In order that they may swivel, there must be some play in the swivel joints. When you start to shove the loaded Carrier along the track, the friction on the track flanges causes the wheels to lag back—then suddenly the shove on the Carrier becomes strong enough to overcome the friction, when the travellers jerk forward. Then they lag back again—then jerk forward It makes the pushing hard and as the swivel wears more and more, the trouble becomes more and more aggravating.

This jerkiness is forestalled in the BT Carrier by means of the tandem track wheels. For any of the travellers of a BT Carrier to lag back or jerk forward, it would be necessary to raise either the front or rear wheels clean off the track, which is impossible.

The traveller axle is turned steel, the journal being machined and surfaced to size, so that the axle fits perfectly. There is an oil pocket around the axle, which distributes the oil evenly, adding to the life of the traveller and making it run more easily and smoothly. The oil pocket is filled through the oil hole in the hub, shown in the picture, page 258.

Roller Arm for Hay Track

There is some demand for the BT Manure Carrier to run on the old-fashioned hay track, this being the track used for some styles of Manure Carriers. The buckets of these makes play out quicker than the track, so the BT Bucket is sometimes supplied for them. We sell as many as 50 BT Carriers a year to replace other broken down Carriers, the special roller arm, Fig. 522, shown on page 258, being used. However, we do not recommend this arrangement. The BT Track will add so much to the satisfaction which your outfit will give you that we urge you to tear out track and all and replace it entirely with the BT Outfit.



SPECIFICATIONS

The BT Manure Carrier—Fig. 52

(Daily)

(Patented)

Bucket—Body is made of 18 gauge "Best Bloom" heavily coated, galvanized steel, securely riveted to ends and doubly secured by a band of ⅜ x 1½ inch steel which encircles the ends. Sides are further supported by a rolled edge, 1 inch in diameter, bent round high carbon split tubing. The edges of the sheet are held in the open seam of the tubing. The sides and ends are fastened together by heavy malleable castings. Ends are made of No. 16 gauge, galvan[illegible] same quality as body. Sides bend over at ends and form a lock seam with the ends. Thi[illegible] constructed that the load inside the bucket makes the join[illegible] tigh[illegible] reinforced by a galvanized malleable casting. To this casting [illegible] riveted [illegible] galv[illegible]ed, malleable, gudgeon. This gudgeon not only se[illegible] but also provides a hub for the hanger arm. A bolt [illegible] the [illegible] hanger arm secured to it by a nut and washer.

Bucket Hanger Arm—⅜ x 1¼ inch high car[illegible] will not bend or break. A 2½-inch pulle[illegible] ub and chain runs. [illegible] the windlass

Tripping Device—Consists of a latch at either end engaging the hanger arms operated by tripping chain at the end and controlled by [illegible] brass spring. The spring is protected, by the tubing which reinforces [illegible] clogging with manure. When bucket is tripped it will dump either [illegible]

Shaft—Of 1¼-inch cold rolled solid steel shafting same [illegible] in factories for line shafting. Shaft has a bearing of 5½ inches on boxings and ample oil holes are provided.

Lifting Chain—Short link, electric-welded chain, tested for 20 times the load it will carry. Suspended at three points and winds on shaft in open spiral.

Roller Arms—Heavy, one-piece, malleable iron castings, so designed that they cannot come off the track. Shaft boxings are hung from roller arms, by ¾-inch bolts which allow roller arms to swivel in taking a curve. Nut is secured to bolt by steel cotter pin which goes through both nut and bolt. (Page 258-259.)

Travellers—4¾-inch gray iron and turned true and smooth on lathe. Run on ¾-inch turned steel axles which are provided with oil holes. Travellers have 5-inch spread on track. Arranged in tandem. (Pages 258-259.)

Windlass—Handwheel type with heavy sprocket chain drive. Fitted with two heavy 9 inch handles so that both hands can be used at once for raising bucket. Handwheel sprocket has 7 teeth, main shaft sprocket, 21 teeth. (See page 253.)

Handwheel Frame—Rigidly supported by ⅜ x 2 inch steel bar and adjustable to take up slack in sprocket chain.

Sprocket Chain—Composed of malleable, detachable links ¼ inch in thickness. Has an ultimate strength of 2,260 pounds.

Handwheel—13½ inches in diameter and fitted with two malleable handles 9 inches long, fitted with heavy wood grips.

Locking Brake—Of best malleable iron. See page 254.

Capacity—Bucket No. 1, 48 inches long x 26 inches wide, with a capacity of 12 bushels, which of cow manure will weigh about 600 pounds. Bucket No. 2 is 48 inches long x 29 inches deep x 28 inches wide and holds 16 bushels, which if cow manure weighs about 800 pounds.

Weight—With Bucket No. 1, 200 pounds; with Bucket No. 2, 210 pounds.

Installation Measurements—The overall depth of the carrier is 3 ft. 6 ins. from the under side of the track when the bucket is windlassed up as far as it will go. The overall width of the BT Carrier No. 1, is 2 ft. 3 ins. No. 2, 2 ft. 7 ins. For turning on a curve, a minimum radius of 3 ft. should be allowed on the track.
The extreme overall length of the BT Manure Carrier is 6 ft. 6 ins.
The Lifting Chain is long enough to lower the bucket 3 ft. 6 ins.
See bottom page 269 for further measurements.

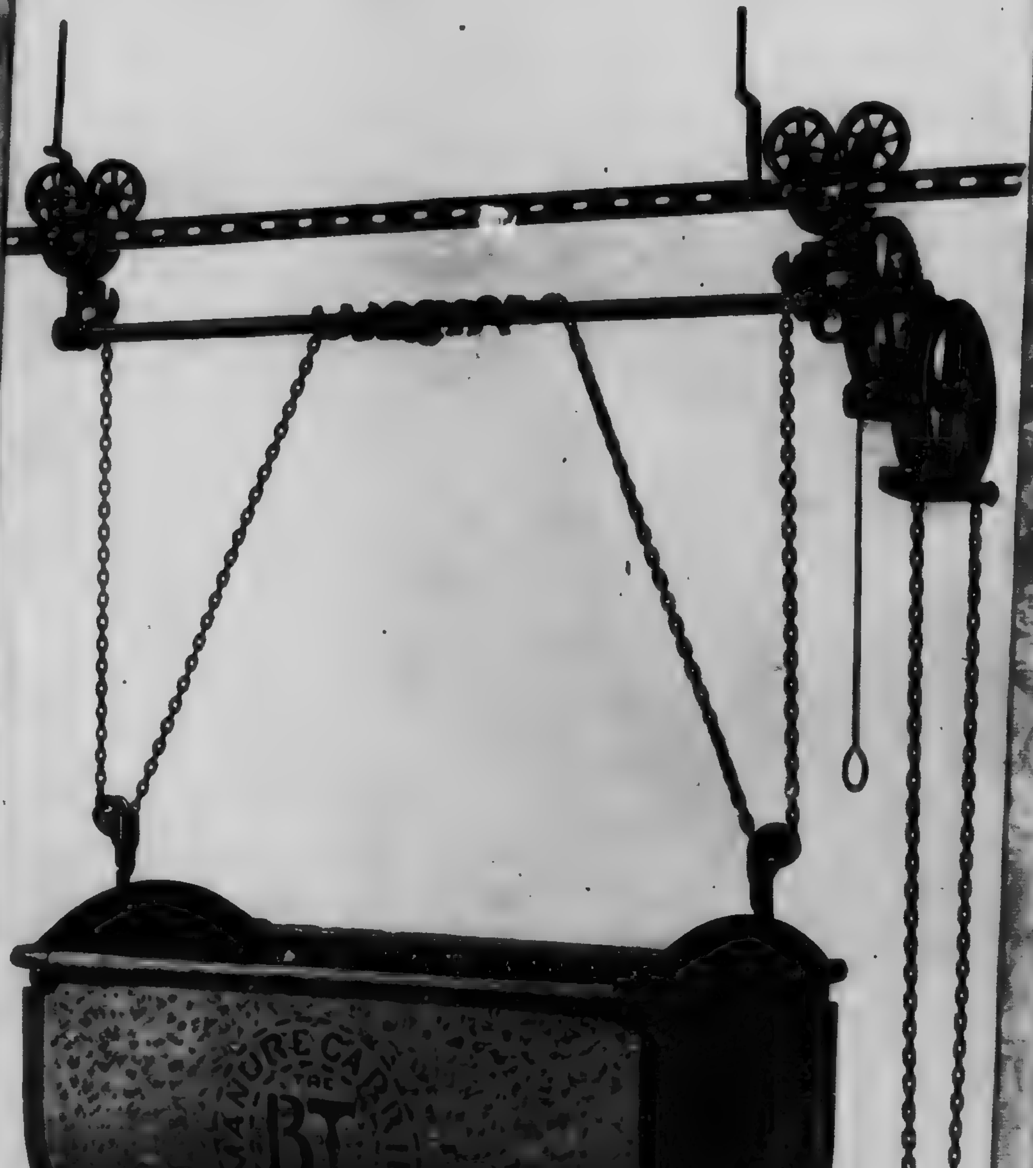


Figure 429 BT Chain Lift Manure Carrier. (Dim)

BT Endless Chain Manure Carrier—Fig. 429

(Dim)

The BT Endless Chain Manure Carrier is designed for use in buildings where the ceilings are exceptionally high. It is also used where there is a sharp fall in the ground outside the door through which it is desired to take out the manure.

For all ordinary cases we strongly recommend our standard Carrier, specifications for which are given on page 261.

In the cases mentioned above, the Endless Chain Carrier is preferable. The chain will hang down the necessary distance below the carrier when it is elevated, without being in the way, as the solid handwheel and windlass would be.

The construction of the Endless Chain Carrier is similar to that of our standard carrier, Fig 52, page 260. The only difference is in the construction of the windlass. Specifications are given in full below when they differ from those of the standard carrier. For specifications covering parts of which the design is the same, see page 261.

Specifications

Bucket—Specifications are the same as for standard carrier. See page 261.

Bucket Hanger Arms—The same as in regular carrier. See page 261.

Tripping Device—The same as in regular carrier. See page 261.

Shaft—The same as in regular carrier. See page 261.

Lifting Chain—The same as in regular carrier. See page 261.

Roller Arms—The same as in regular carrier. See page 261 and illustration on page 258

Travellers—The same as in regular carrier. See page 261 and illustration on page 258.

Windlass—It is the endless chain gear type, consisting of one-piece main frame, main gear, small malleable pinion driving the main gear, and a hand chain wheel. The main gear has 60 teeth and the pinion 15 teeth. Both have 1¼-inch face. Hand chain wheel is 12 inches in diameter, and carries a ¼-inch hand chain, 12 feet long. The teeth of the hand chain wheel are deep to grip the chain firmly.

Chain Guides—Special pulleys, one on either side, guide the chain and keep it on the chain wheel.

Locking Brake—Made of best malleable and controlled by a handle.

Capacity—Bucket No. 1, 48 inches long, 26 inches deep and 24 inches wide. Holds 12 bushels, or 600 pounds of cow manure.

Weight—200 pounds.

Installation Measurements—The overall depth of the Endless Chain Carrier is 3 ft. 4 ins. from the under side of the track, when the bucket is windlassed up as far as it will go. The overall width of the endless chain Carrier is 2 ft. 3 ins. A minimum radius of 3 ft. should be allowed on the track for turning on a curve.

The extreme overall length of the Endless Chain Carrier is 6 feet.

Barn of W. E. Poley, Roch
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h BT Manure Carrier.

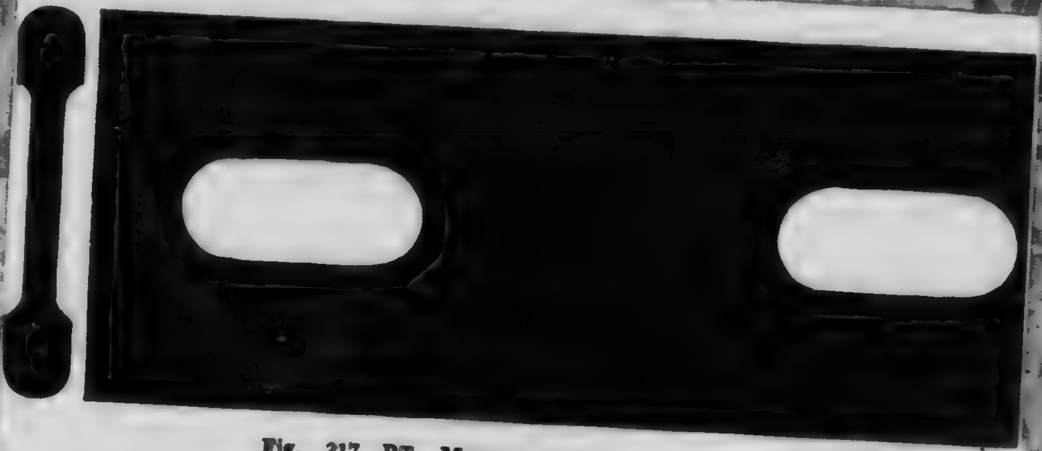


Fig. 217—BT Manure Carrier (Standard) Track, Actual Size (Dunner)

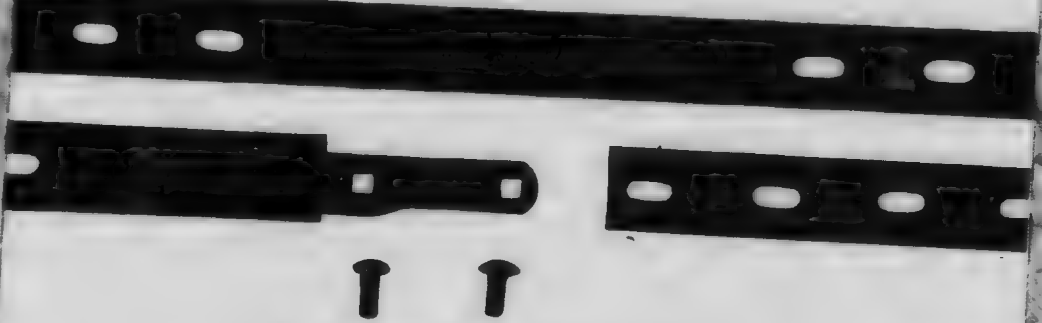
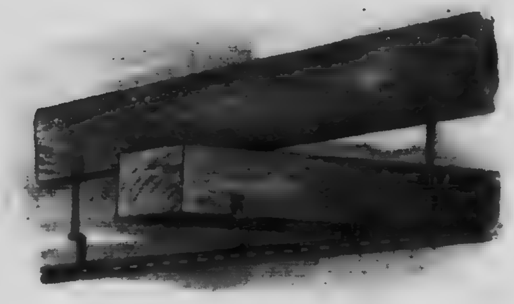


Fig. 214—Manure Carrier Track Couplings (Dora)



BT Track Passing under Beam

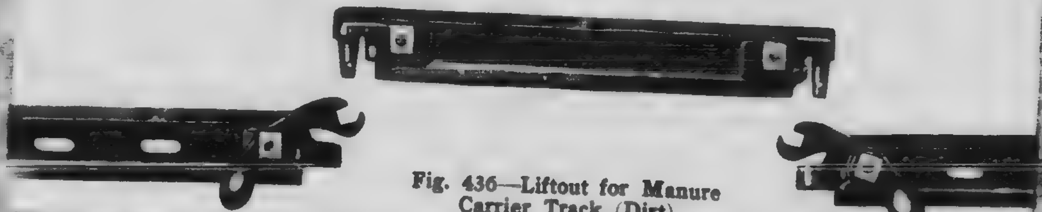


Fig. 436—Liftout for Manure Carrier Track (Dirt)

BT Manure Carrier Track

(Patented)

BT Track was developed specially for overhead Conveyor work. If you examine the illustration of BT Track, Fig. 217, on the opposite page you will see how splendidly suited to this work it is.

Strength of BT Track

BT Track is a full two inches deep. It is hung on edge so that every ounce of material supports the load. It is shaped like the I-Beams used for girders on steel bridges and sky scrapers. Railroad rails are built on the same principle. There is practically no strain on the centre of a beam. The strain comes at the edge. We have recognized this mechanical fact, by putting the weight of material into the flanges at the top and bottom of the track, where the strains have to be carried. These flanges and the great depth of the track make it stiff beneath the heavy weights it must carry. BT Track will never spring or sag in spots beneath the hangers and make low places which cause the Carrier to push hard and jerkily. The depth of the BT Track gives it longer life.

Does not Collect Ice

BT Track offers a surface only 5-16 inch wide on which snow or ice can collect. This surface is rounded, as will be seen by Fig 217 on the opposite page. There is never any need to melt or scrape snow and ice off the BT Track. Moreover, the rounded surface of the track causes practically no friction and allows the Carrier to run easily and quietly. A flat track gives constant trouble. Snow and ice collect and have to be scraped off continually.

Easily Erected

Anyone can put up BT Track. It is supplied with holes punched every 3 inches. The hangers simply button on. The illustration on page 268 shows how the ends of the hangers are inserted in the holes in the track and then just turned up into place. The nailing plate is then slipped through the top of the hanger, turned to the position desired and nailed to the joist.

The best of high carbon steel is used in BT Track. It can be bent to any curve desired when it is being put up in the barn. No "special curves" need be purchased and no heat is required for bending.

There are no little stove bolts to tighten when erecting BT Track. This work takes time. Also, the bolts are continually shaking loose and working off as they are struck by the track wheels, making it necessary to tighten them constantly.

BT Track Not a Hay Track

Some firms use the same track for their Manure Carrier as they do for their Hay Carriers. This is bound to be unsatisfactory. A Hay Track does not need as great vertical strength. It doesn't have to be bent into curves nor branched into half a dozen different passages. It is not hung in one place, a foot below the point of support, and in another only 8 inches. It doesn't have to run out into the yard where it is exposed to snow and ice. Yet, a Manure Carrier Track has to do all these things. It is obvious that the two cannot be interchanged successfully. BT Track was designed and built for nothing but overhead conveyor work. We manufacture three different tracks for Hay Carrier work, which we could

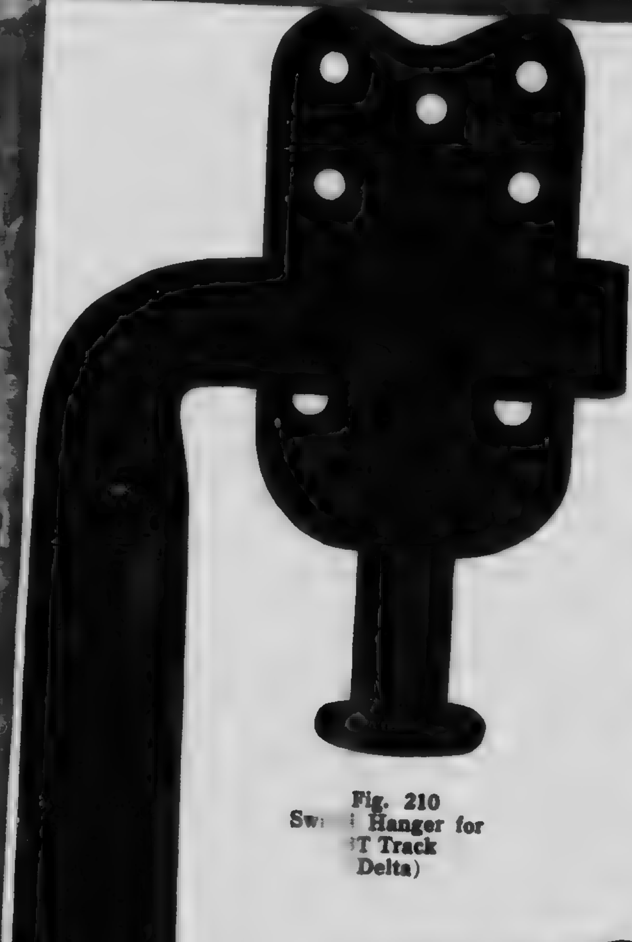


Fig. 210
Sw[illegible] Hanger for
BT Track
Delta)

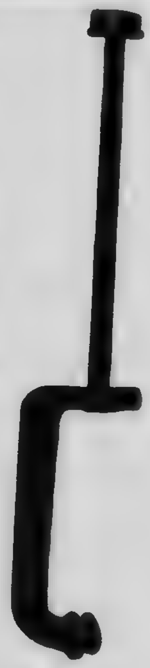


Fig. 734
Pole Hanger
(Dog)

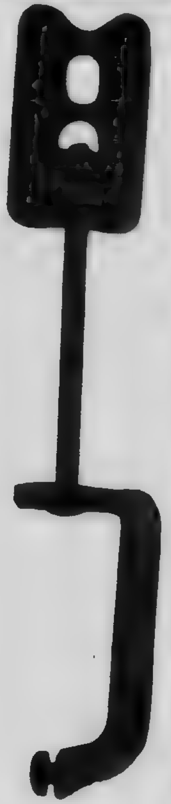
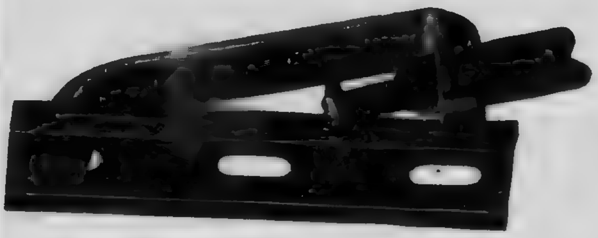


Fig. 215
BT Extension
Hanger
(Dentist)



Showing how Hanger Buttons on Track

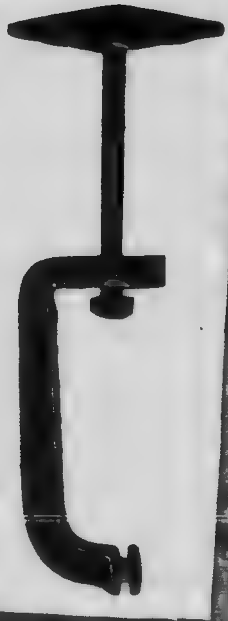


Fig. 136
BT Track Hanger
with Plate for
Nailing to Ceiling
(Dong)

have used for Manure Carrier Track, had we thought it advisable. We preferred to design a special track to meet these special needs.

Joint Clips—Fig. 214

(Dora)

Fig. 214, page 266, shows the heavy joint clip or track joint, used to bolt the sections of BT Track together. Note the unusual length, and also the fact that four bolts are used, thus making an unusually strong splice. The track is perfectly strong and rigid at the joint.

Removable Track Sections—Fig. 436

(Dirt)

The liftout, Fig. 436, page 266, is used to permit the closing of sliding doors or where two tracks cross. It is fitted with two safety catches that spring up and block the ends of the track when the liftout or removable section is removed.

BT Hangers

(Patented)

The ease with which BT Track is erected is due in large measure to the design of the hangers. The BT Track with its spaces every three inches for the hangers and the simple button-on hangers themselves, cut in two the time taken to erect an outfit, since no bolts, nuts or wrenches are required. Both these features are patented by us and cannot be supplied by any other maker. BT Hangers do not allow the track to tarve over. They are designed so that the centre of the nailing bracket is exactly in line with the centre of the track.

The different types of hanger required to fit any barn are shown on the opposite page.

The BT Swivel Hanger, Fig. 210, consists of the hanger and nailing bracket. The nailing bracket swivels so that it can be attached to the joist, no matter at what angle the joist may be in respect to the track.

BT Extension Hanger, Fig. 215, is used to suspend the track any required distance below the joists. The use of this hanger is illustrated in the photo on page 266. The rod is provided with a long thread which allows the level of the track to be adjusted exactly.

The BT Pole Hanger, Fig. 734, is used to attach the track to either a steel or wood swing pole. The rod goes through the pole and is fastened at the top by the nut and washer.

The BT Ceiling Bracket, Fig. 136, is supplied with a flat plate instead of nailing bracket. It is used when the barn is ceiled. The plate is attached to the ceiling by two lag screws.

Installation Particulars—The BT Swivel Hanger, Fig. 210, is 10 inches long overall, and suspends the track so that the top of the track is 6 inches below the bottom of the joist.

BT Extension Hangers, Fig. 215, should correspond in length to the depth of the timber below the point of support. Thus, if the girder in the illustration on page 266 were 8 inches deep, 8-inch extension hangers should be specified; if 12 inches deep, 12-inch hangers, and so on. When ordering BT Pole Hangers, Fig. 734, state whether swing pole is wood orsteel.

No end stop is required. Hangers are all placed on one side of the track to allow the track wheels to pass. The end hanger is placed on the opposite side and serves as a first class end stop. Hangers are made of malleable iron. They should be placed 36 inches apart, with an extra hanger in the middle of every curve.

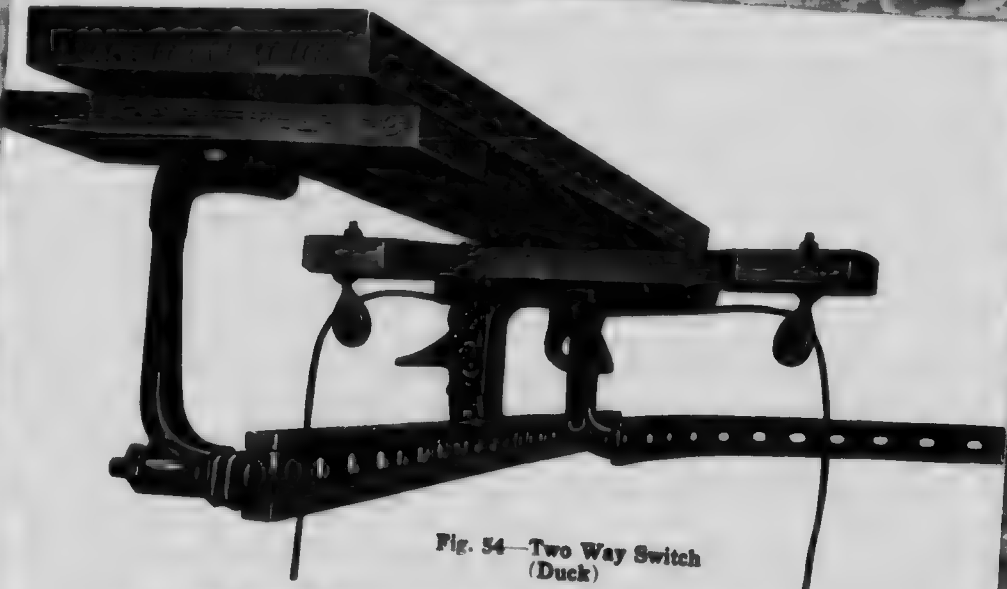


Fig. 54—Two Way Switch
(Duck)

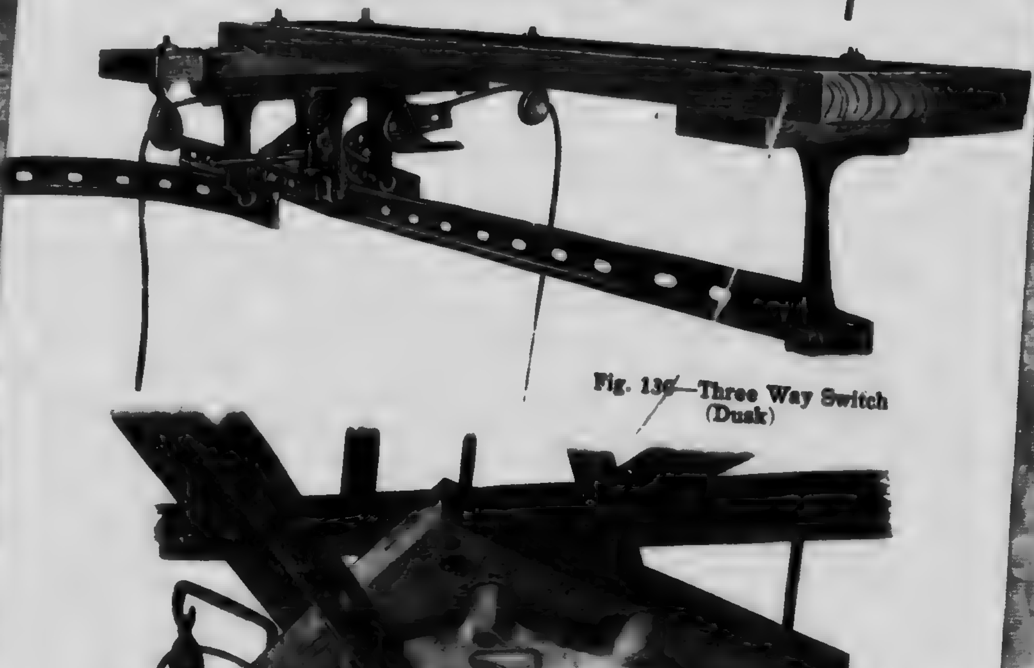


Fig. 136—Three Way Switch
(Dusk)

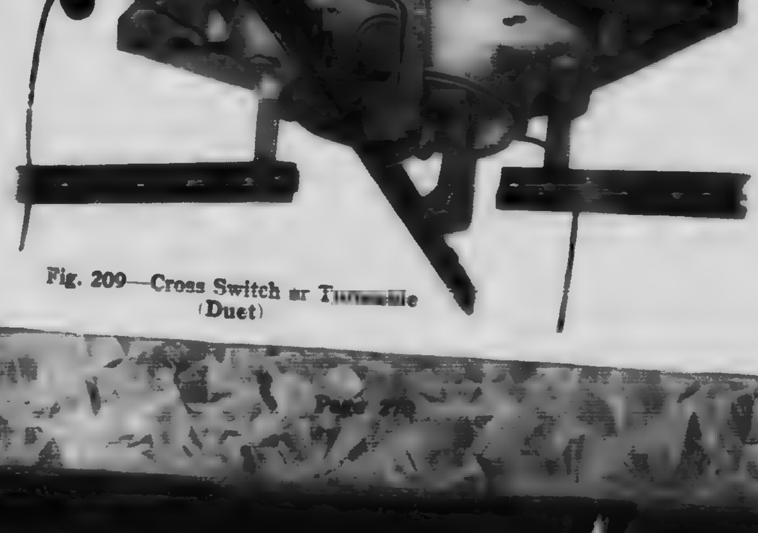


Fig. 209—Cross Switch or T[illegible]le
(Duet)

BT Switches

Most barns need at least one switch. By the use of BT Switches the track can be branched off into any part of the building. By means of Fig. 54, page 270, the carrier can be branched off into either one of two, and by Fig. 130, into either one of three, directions.

BT Switches are sent mounted complete. They include the switch itself, hinge for the track and special hinge hanger, also the moving section of track between the track hinge and the switch. These parts are all mounted solidly on a wood block so that the switch can be erected in a moment. Just secure it at the right height and attach the runs of track to the track hinge and to the hangers on the switch frame.

Another great advantage of BT Switches is that they automatically block the open ends of the track. There is no danger of the carrier running off at an unprotected end.

The BT Switches lock solidly in position. They cannot move by accident. The switch will only lock in front of the track ends. The moving section of the track is automatically prevented, by the construction of the switch, from going past the track on which the carrier is to run.

BT Switches are reversible. That is, they are both right and left hand switches. To convert a right hand switch into a left hand switch, or *vice versa*, remove the bolt holding leg of switch to the switch frame and place the moving leg on the other side of the moving section of track. Then loosen the bolts and turn the stationary legs of the switch round so that they also come on the opposite side of the track.

BT Switches are very simple, compact and neat in construction. There is nothing to get out of order. All parts are made of best malleable iron, heavily made to stand the strains put on them.

Weights: Two-way switch, Fig. 54—23 pounds. Three-way switch, Fig. 130—25 pounds.

The BT Turntable—Fig. 209

(Duet)

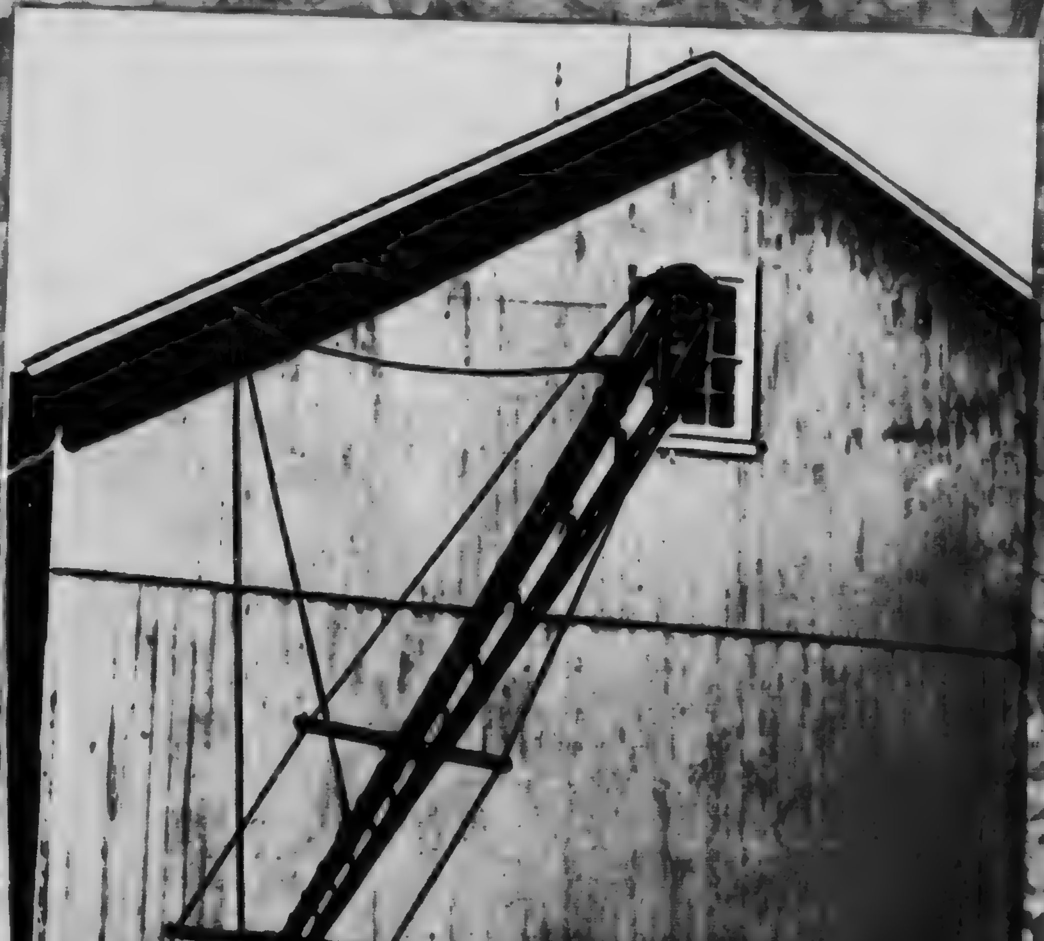
The BT Turntable or Cross Switch is used where two tracks cross. A small section of track in the centre revolves and completes the line of track over which it is desired to run the carrier.

The open track ends are automatically blocked by the casting which revolves. The carrier cannot run off an open track end. The movable section is prevented by stops on the stationary ends from swinging past the proper point.

The BT Turntable consists of a heavy cast metal frame mounted on heavy wooden blocks, malleable arms to support the movable section and four short lengths of manure carrier track.

There is no adjusting to do. The Turntable comes ready to erect in the stable. The adjustment between the movable section and the stationary ends is carefully made in the factory. All that is necessary is to fasten it in place against the support overhead and fasten the track to the four ends sent with the turntable.

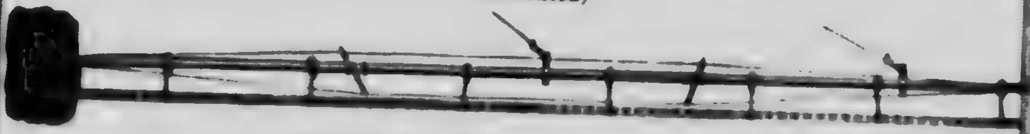
Weight complete, 75 pounds.



BT Steel Swing Pole.

BT Steel Swing Pole—Fig. 208

(Datty)
(Patented)



The BT Steel Swing Pole—Side View

With a BT Steel Swing Pole the manure can be carried out and dumped where required in the yard.

The swing pole abolishes entirely the manure pile close up to the barn, giving off ammonia fumes and breeding disease germs and flies. Practically all cities now have by-laws covering the conditions under which milk may be shipped in for city consumption. One condition invariably is that manure must be kept well away from the barn.

It is easy to do this with a BT Steel Swing Pole. This is the best possible device for carrying the track over the barnyard, since no posts are required to support it. A 30-foot swing pole gives a dumping area greater than a straight, rigid track, running out a hundred feet from the stable. When it is necessary to drive close to the barn with a load of hay, the pole may be swung back against the barn to either side. This is a great advantage and one not possessed by any rigid construction.

Every Manure Carrier Outfit should have a swing pole. We recommend the steel pole. It will not rot and comes from the factory ready to set up. There is no work hauling the pole, trimming it to size and making it ready for use.

If good ash or cedar posts are available, they can be used up to 45 feet in length. They should be not less than 4 or 4½ inches in diameter at the small end.

The necessary track hinges, pole hinge, and guy rod fittings are illustrated and described on pages 274-275. These are used with either steel or wood poles.

Specifications

Made of the best solid steel tubing, galvanized, 2⅜ inches O.D. connected by heavy malleable splice clamps.

½-inch truss rods prevent the pole from buckling.

½-inch guy rods are supplied, one for each 8 foot length of pole.

A swing pole of any length up to 45 feet is practical if the distance from the pole hinge up to the plate to which the guy rods are attached measures 18 feet or more. Built in the following lengths: 25 feet, 30 feet, 35 feet, 40 feet and 45 feet.

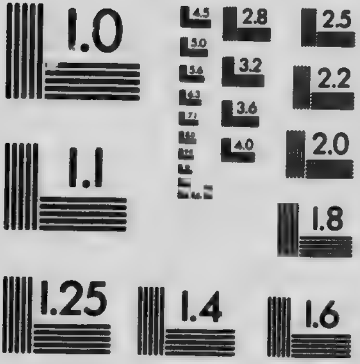
Steel Swing Poles are regularly supplied in lengths which are multiples of 5 feet. If other sizes are ordered, they are charged for at the price of the next standard size. That is, a 32-foot pole would cost the same as a 35-foot pole.

Length of pole	Number of guy rods	Minimum vertical distance from the butt of the pole to guy rod bracket	Length of pole	Number of guy rods	Minimum vertical distance from the butt of the pole to guy rod bracket
10 feet	1	6	30 feet	3	12
15 "	1	8	35 "	3	16
20 "	2	8	40 "	4	18
25 "	2	10	45 "	4	22

Steel Swing Pole includes the neecssary brace rods, guy rod bracket, pole hinge. Standard Track Hinge, Fig. 124, and clamps to secure the hangers. Detailed description of these fittings will be found on pages 274-275.

MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



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1653 East Main Street
Rochester, New York 14609 USA
(716) 482 - 0300 - Phone
(716) 288 - 5989 - Fax

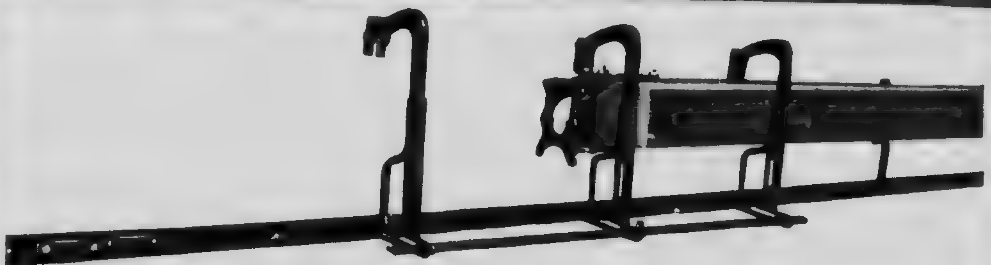


Fig. 435—BT Spring Steel Track Hinge (Dark)

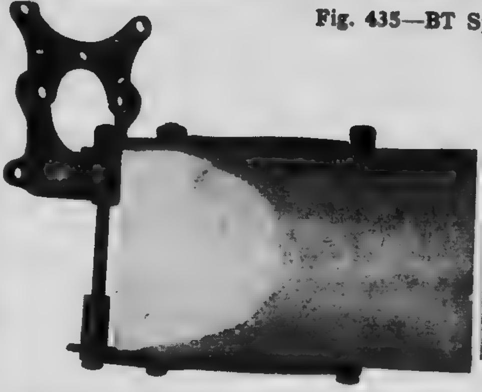
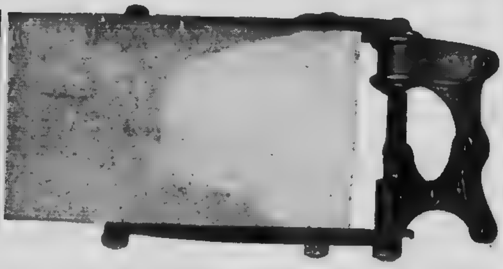
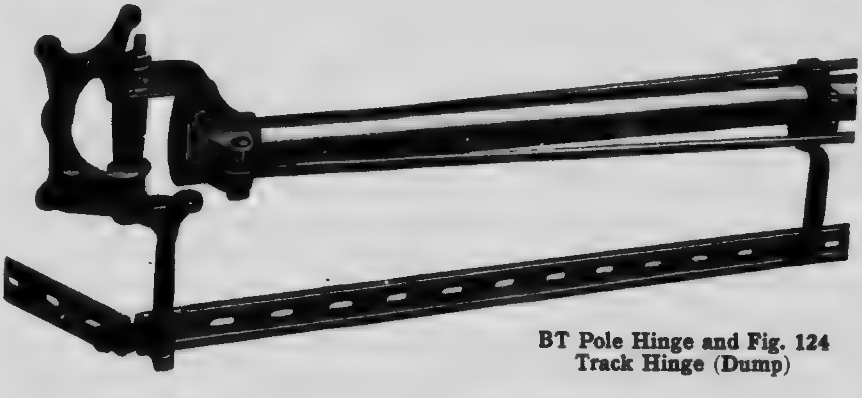


Fig. 131—BT Complete Swing PoleHinge (Drag)



BT Pole Hinge Reversed



BT Pole Hinge and Fig. 124 Track Hinge (Dump)

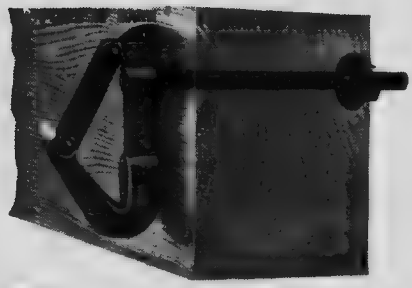


Fig. 516
BT Bracket for Guy Rods (Duol)

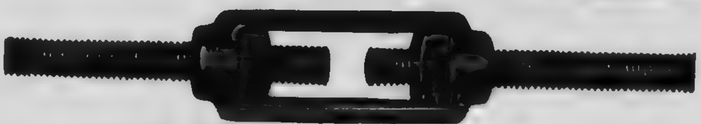


Fig. 239—BT Turnbuckle for Guy Rods

BT Spring Steel Track Hinge—Fig. 435

(Dark). (Patented)

This hinge is used when it is desired to run loads out on the pole, when the pole is at an angle to its central position. It will not clog with ice or snow. It bends to a curve of large radius so the carrier can be pushed on it with ease.

It consists of an 8-foot length of spring steel which is joined to the track by means of the regular joint straps. It is supported on the pole by swinging brackets. The bar connecting these prevents the track hinge making a sharp bend. For illustrations of how doors should be cut to accommodate this hinge, see page 33.

BT Manure Carrier Track Hinge—Fig. 124

(Dump)

In cases where the pole will always stand in its central position when the load is being run out, we recommend Fig. 124 Track Hinge.

The outer end of the pole should always be securely anchored to prevent it being swung by the wind. The pole can be shifted as the manure pile is built up. When summer comes and the cows are pastured, the track can be disconnected and the pole swung against the barn. Because of the shape of the BT Track and because of the excellent high carbon steel used in it, outfits are sometimes installed without a hinge. The track can be bent any angle desired.

BT Complete Swing Pole Hinge—Fig. 131

(Drag). (Patented)

The pole hinge consists of a heavy malleable iron supporting bracket which is attached to the building, and two malleable straps which bolt to the pole, also the necessary bolts and coach screws.

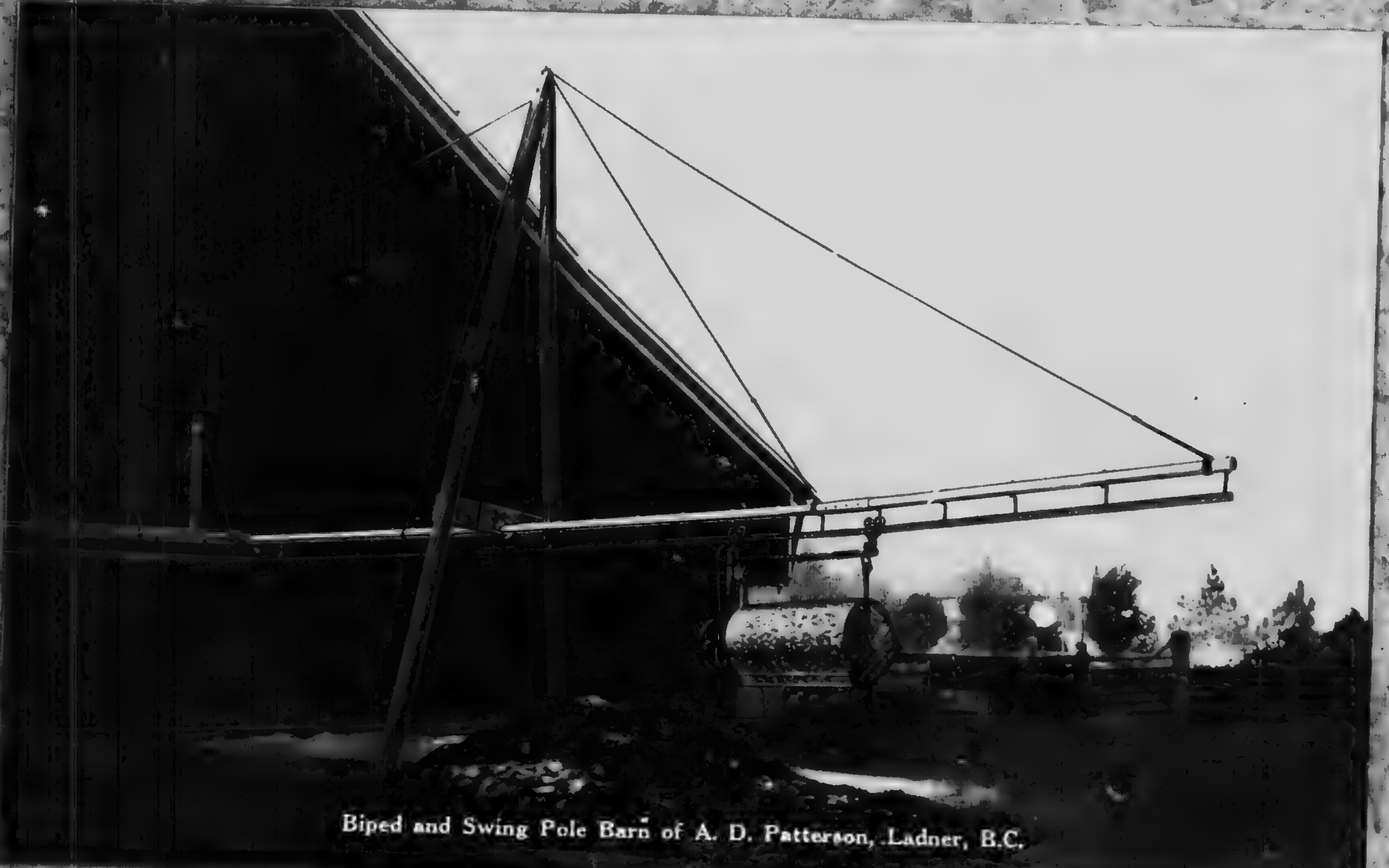
The pole hinge bracket must be securely fastened to the door lintel, or to the plate above the door, if the doorway reaches it, by means of coach screws. If the lintel is cement, the bracket may be bolted with ½-inch bolts to a plank which is secured from the door frame to the barn frame above. The BT Swing Pole Hinge, shown in Fig. 131, is used with wood poles and will take poles from 6 to 8 inches deep at the butt end.

As illustrated on the opposite page, the BT Swing Pole Hinge can be attached to the lintel in either of two ways. If the door has a glass transom and it is desired to get the pole as low as possible, it would be installed as shown in Fig. 131. If there is no transom, the hinge should be reversed, in order to bring the bottom of the pole on a level with the top of the door.

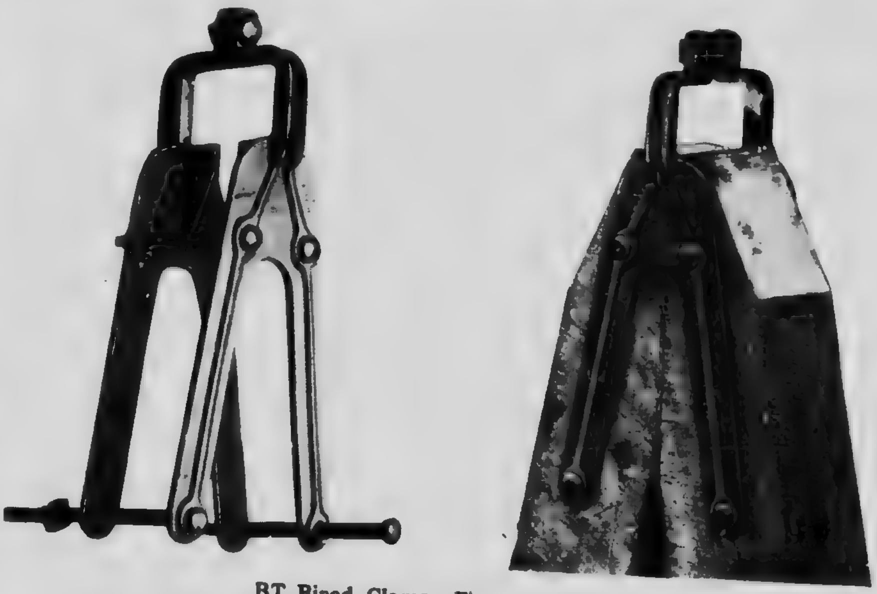
Guy Rod Bracket—Fig. 516

(Duol)

Guy rods are furnished with malleable eyes at one end to go on the guy rod bracket, Fig. 516. A hole is bored through the plate of the barn and a bolt secures the bracket to the plate. The end of the bolt is threaded and is furnished with a heavy washer. The guy rod bracket is made of steel and malleable iron. The steel bolt by which it is secured to the plate of the barn is ¾-inch in diameter. The malleable eyes on the ends of the brace rods are hooked on the bracket. The steel guard is then bolted in place. There is then no possible chance for the brace rods to come off the bracket. BT Guy Rods are made of ½-inch steel and are furnished with a turnbuckle shown in Fig. 239, page 274. By means of this turn-buckle the brace rods can be tightened and adjusted to length. There is a long thread on the brace rods for this purpose.



Biped and Swing Pole Barn of A. D. Patterson, Ladner, B.C.



BT Biped Clamp—Fig. 533 (Dome)
For holding together the uprights of a Biped

The Biped

It is frequently necessary to have the manure pile at too great a distance from the barn to reach it with an ordinary swing pole. In this event the track is carried a convenient distance on an overhead beam as shown on page 276. At this point two inclined posts are placed as on page 276. A pole hinge is bolted to a pair of horizontal planks, spiked or bolted one on each side of the two uprights. The uprights should be not less than 4½ inches in diameter at the small end. They should be not less than 8 feet apart at the bottom, and should go about four feet in the ground. Two pieces of good cedar should be nailed at right angles to the bottom of each of the poles. These pieces should be about 2 feet long and weighted with heavy stones. This will prevent the leverage, caused by the weight on the end of the swing pole, from lifting the poles out of the ground.

Uprights are held together by our Biped Clamp, Fig. 533. Its use is illustrated by the photo on page 276. Details of this clamp are shown by photos above.

The Biped can be placed 40 feet from the barn without central support other than brace rods and will support a 30-foot or 35-foot swing pole. For a 30-foot pole, the Biped should extend 14 feet above the pole hinge, and at least 16 feet above the pole hinge for a 35-foot pole. The beam which carries the track from the stable to the Biped should be braced with an ½-inch brace rod for every 10 feet. These brace rods should run back to the barn The beam should not be braced from the biped. The same pole hinge and track hinge are used under the biped to hinge track and pole as when the pole is attached to the barn. See pages 274-275.

[illegible] Steel Construction Barn of Gordon Gooderham, Clarkson, Ont.

Bracket Bracing Barn of L. A. Abbott, Clover Bar, Alta.

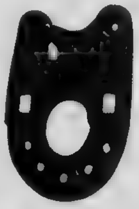


Fig. 128 Outside Bracket for attaching Brace rods (Duty)

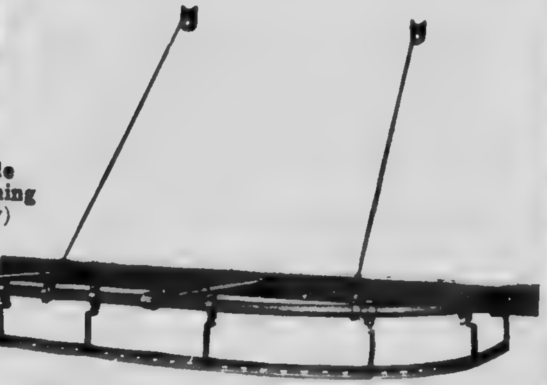


Fig. 306. Construction of Outside Bracket in steel (Spoke)

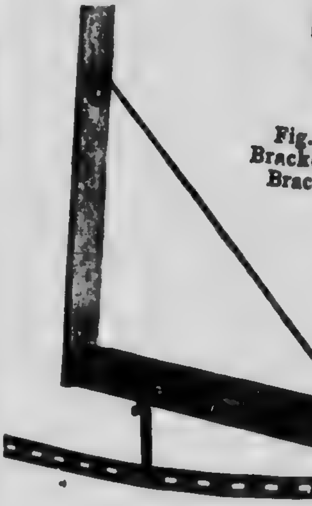


Fig. 132—Construction of Outside Bracket in wood

Bracket Bracing—Fig. 132

The lower illustrations at bottom of page 278 show how the BT Track can be run outside of the barn from door to door in order to pass from one row of stalls to another. It sometimes happens that the pole cannot be placed directly in front of the door and the track must be bracketed along the side of the barn from the door to the pole.

The bracket may be constructed of wood, as illustrated in Fig. 132 above. 2 x 6 scantling should be used for the front, with 2 x 4 studs running from it to the side of the barn, every 6 feet.

We supply the ½-inch brace rods and malleable iron brackets necessary for this construction. Two brackets, Fig. 128, are used with every rod as in Fig. 132. The track is attached by the use of the ordinary hangers.

Steel Bracket Bracing—Fig. 306

(Spoke)

We supply the construction described above made of steel tubing instead of wood. This looks neater and lasts longer.

Specifications—Frame is made of 1⅞ O.D. tubing. Tubing runs from frame back to barn every 6 ft. Tubing is fitted with clamps for attaching to barn. Clamps are sent to attach the brace rods to the frame. One outside bracket, Fig. 128, should be specified for each rod to attach rod to barn. Tubing and clamps are galvanized and finished in grey enamel.

Outside Steel Construction—Fig. 430

(Datter)

The cut at the top of page 278 shows how to get the manure a good distance from the barn. Steel frames are placed 12 feet apart and support a steel beam to which the track is attached by means of hangers. This construction is very neat, takes up little space, and is much more durable than the wood construction.

Specifications—1.9 inch O.D. steel piping, galvanized and painted with grey enamel paint; galvanized malleable fittings and ½-inch bolt. They can be furnished any length desired. Uprights must be set in concrete. The horizontal pole is 2⅜-inch O.D. tubing galvanized and finished in grey enamel.

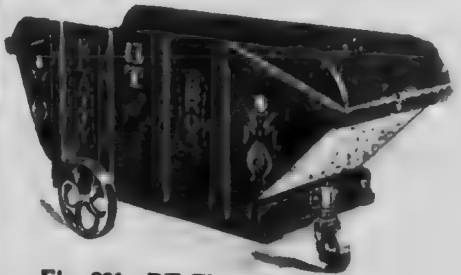


Fig. 281—BT Floor Feed Truck
(Durr)

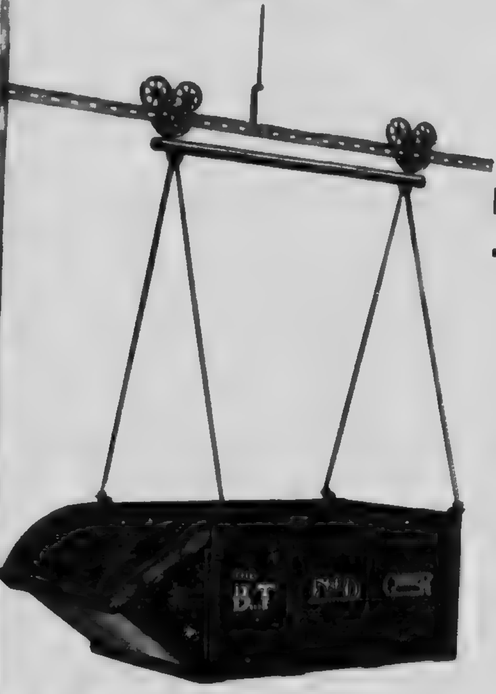


Fig. 59—BT Wooden Feed Carrier for Overhead Track, sloped one end
(Dovet)

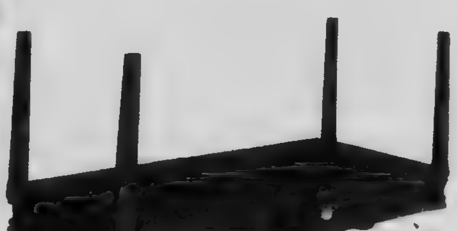


Fig. 332—Without the Rack
(Dupo)

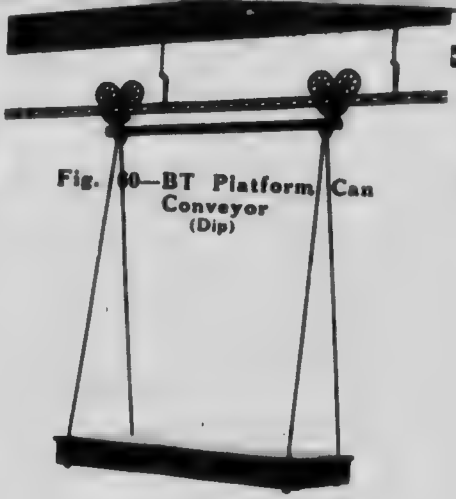


Fig. 60—BT Platform Can Conveyor
(Dip)

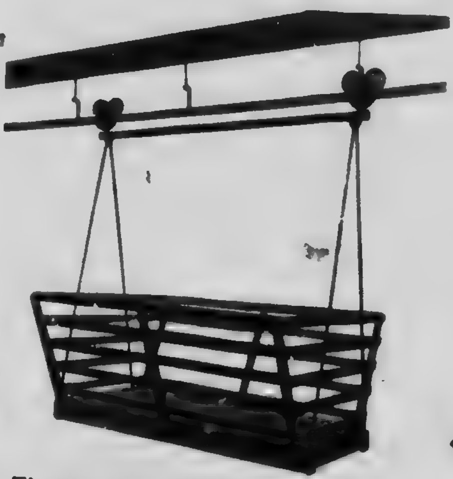


Fig. 528—BT Hay Rack Carrier for Overhead Track
(Dury)

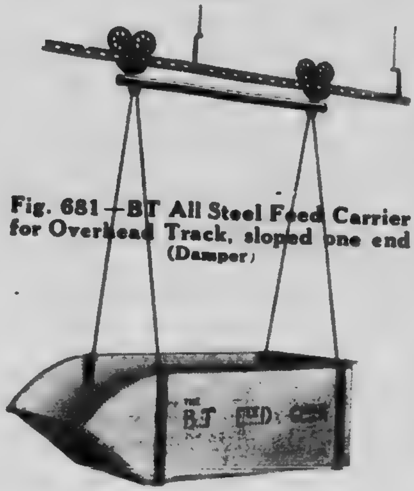


Fig. 681—BT All Steel Feed Carrier for Overhead Track, sloped one end
(Damper)

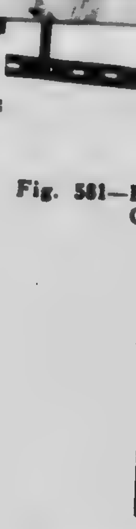
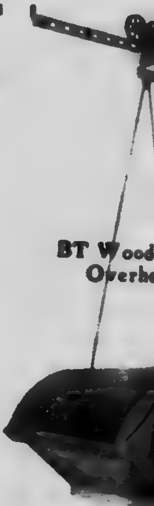
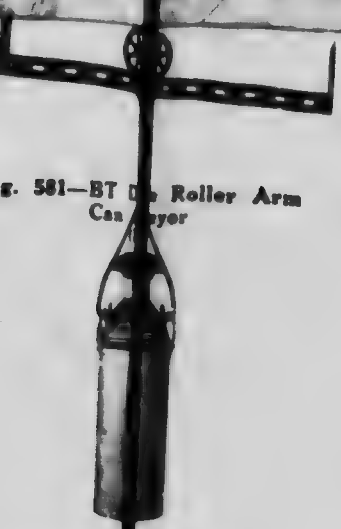


Fig. 581—



BT Wood
Overhe

Fig. 528—Hay



g. 581—BT D Roller Arm Ca eyor

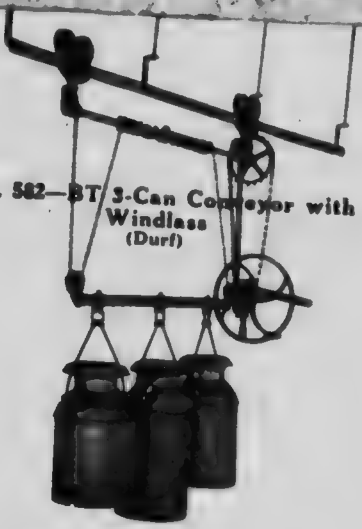


Fig. 582—BT 3-Can Conveyor with Windlass
(Durf)

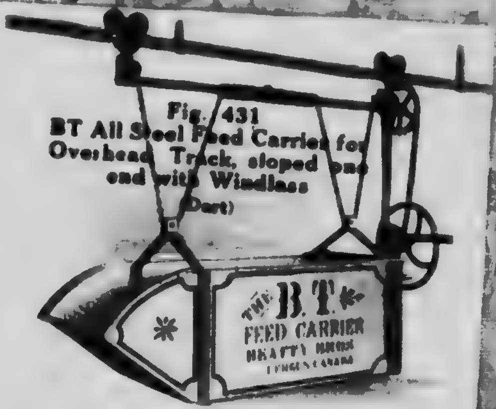
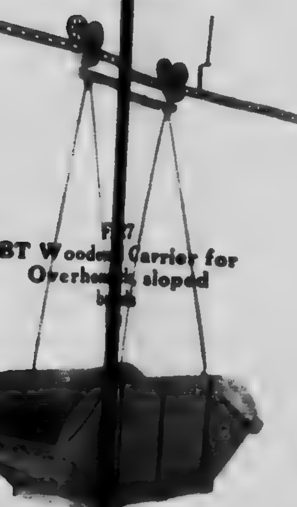


Fig. 431
BT All Steel Feed Carrier for Overhead Track, sloped one end with Windlass
(Dart)



F 7
BT Wooden Carrier for Overhe sloped
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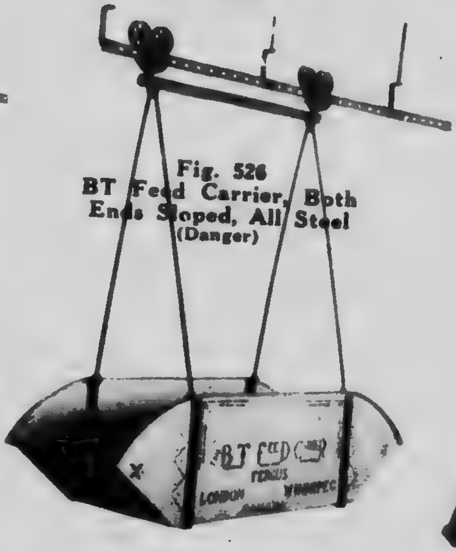


Fig. 526
BT Feed Carrier, Both Ends Sloped, All Steel
(Danger)

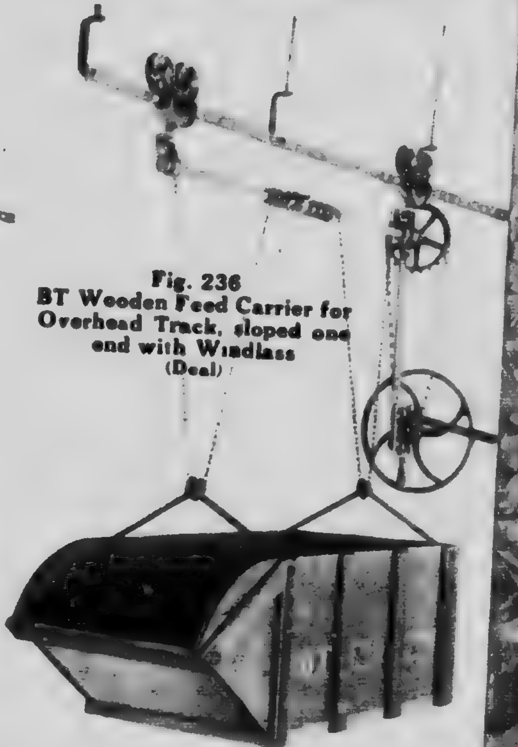
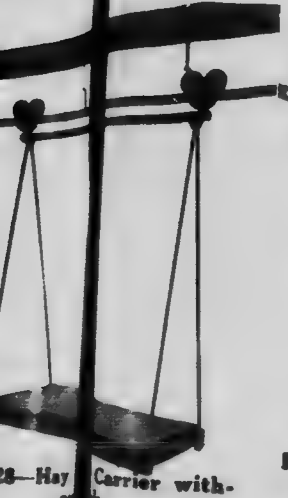


Fig. 236
BT Wooden Feed Carrier for Overhead Track, sloped one end with Windlass
(Deal)



28—Hay Carrier with-
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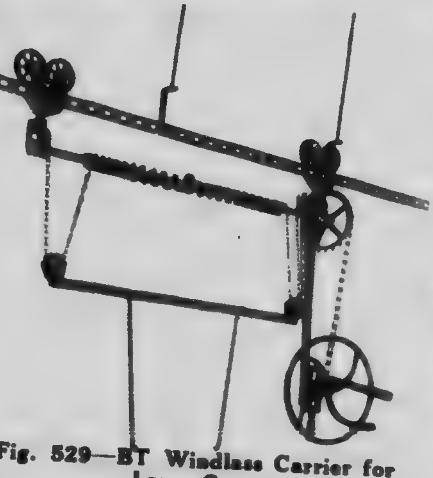


Fig. 529—BT Windlass Carrier for Large Cans
(Durn)

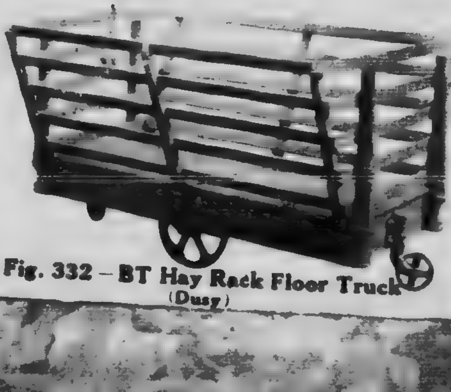


Fig. 332 – BT Hay Rack Floor Truck
(Dusy)

Feeding time, Barn of Gordon Gooderham, Clarkson, Ont.

Barn of A. Little, London, Ont. Using Feed Truck.

BT Feed Carriers

More than three pounds of feed have to be given the cattle for every pound of manure removed from the stable.

Feeding has to be done just as regularly, and even more frequently, than cleaning.

The need of some handy, time-saving, work-saving, method of handling feed is very great. A basket is not satisfactory for carrying the feed to the cows. There is too much heavy lifting required for either basket or pail, and too many trips back and forth to root cellar, silo or feed room. Much of the feed is spilled and wasted. Baskets and pails become unsanitary and sour.

The system of overhead tracking for the manure carrier can be extended down the feed passages to the feed room and root cellar at a small extra cost, and a BT Feed Carrier can be used for handling the fodder. Ensilage, grain, roots, pulped roots, chopped stuff, corn on the ear, meal and all other rations can be handled in this way.

If feed passages are smooth and level, a floor feed truck may be used. This is less expensive than the overhead feed carrier outfit, but when floors are uneven and buildings are suitable the overhead system is preferable. Overhead tracking systems with special carriers save much work in conveying milk cans, hay, ice, etc., in the dairy barn.

In this book, pages 280-281, we have illustrated several types of feed and hay carriers, for which complete specifications have been given.

BT Floor Feed Truck—Fig. 281

(No. 1 Durr; No. 2 Durs; No. 3 Durt)

Specifications

Box—This is made of thoroughly seasoned, Canadian White Pine, tongued and grooved and strongly bolted together. The ends and bottom are made of one 18-gauge, best bloom, galvanized steel sheet. This perfectly smooth bottom is very easy to shovel from and very durable. All the edges of the box are protected by bands of steel and the corners are stoutly reinforced with iron. Wooden cleats run at frequent intervals up and down the sides.

The weight of the box is nicely balanced on the wheels so that when filled, the truck can be run along any reasonably smooth floor with but little effort.

Frame—This is substantially built of 2-inch hard maple, solidly bolted together.

Main Wheels—Are of heavy design and run on 1-inch cold-drawn steel shaft. On No. 1 and No. 2 Carriers, main wheels are 14 inches in diameter with 2-inch face. On No. 3 carrier, main wheels are 16 inches in diameter with 2½-inch face.

Castor Wheel—On all sizes, 6 inches in diameter with 1¼-inch face. Each castor is held in a swivel bracket which allows the truck to turn easily.

Size and Capacity—No. 1, 6 feet 4 inches long, 2 feet wide, 2 feet deep, 15 bushels; No. 2, 6 feet 4 inches long, 2 feet 8 inches wide, 2 feet 4 inches deep, 20 bushels; No. 3, 7 feet 2 inches long, 2 feet 8 inches wide, 2 feet 4 inches deep, 25 bushels.

Weight—No. 1, 200 lbs; No. 2, 230 lbs; No. 3, 275 lbs.

Feeding with a BT Feed Carrier.

BT All Steel Feed Carrier, One End Sloped—Raise and Lower—Fig. 431

(**Dart**)

Specifications

Box—Built of best grade heavy, galvanized steel sheets, securely riveted by tinned rivets. The corners are strongly reinforced with steel straps and two very heavy steel bars encircle the whole box, making it rigid and capable of handling the heaviest loads. All joints are carefully soldered, consequently the box is watertight

Shaft—Of 1¼ inch cold rolled solid steel shafting; has bearing of 5½-inches on boxings.

Lifting Chain—Short link electric welded chain, suspended from shaft at three points and winds on shaft in open spiral.

Roller Arms—Heavy, one-piece, malleable iron castings, so designed that they cannot come off the track. Shaft boxings are hung from the roller arms by ¾-inch bolts, which allow roller arms to swivel in taking a curve. (Pages 258-259.)

Travellers—4¾-inch grey iron with treads turned off in the lathe to insure smooth running. Run on 1⅛ inch turned steel axles and are provided with oil holes. Travellers have 5-inch wheel base. Arranged in tandem (Pages 258-259.)

Handwheel Frame—Rigidly supported by ⅜-inch x 2-inch steel bar and adjustable to take up slack in sprocket chain.

Sprocket Chain—Composed of malleable, detachable links ¼-inch in thickness. Has a capacity of 2,260 pounds.

Handwheel—12½ inches in diameter and fitted with 9-inch handles fitted with wood grips. (See page 253.)

Locking Brake—Of best malleable iron. (See page 254.)

Size and Capacity—Box is 5 feet long, 24 inches wide and 20 inches deep. Sloped at one end. Holds 12 bushels.

BT Feed Carrier, One End Sloped, all Steel—Fig. 681

(**Damper**)

Specifications are the same as for Fig. 526, page 287, except that one end slopes instead of both ends sloping.

BT Feed Carrier, One End Sloped, all Wood—Fig. 59

(**Dovet**)

Specifications are the same as for Fig. 527, page 287, except that one end slopes instead of both ends sloping.

Feed Carrier, Wood Box, One End Sloped, Raise and Lower—Fig. 236

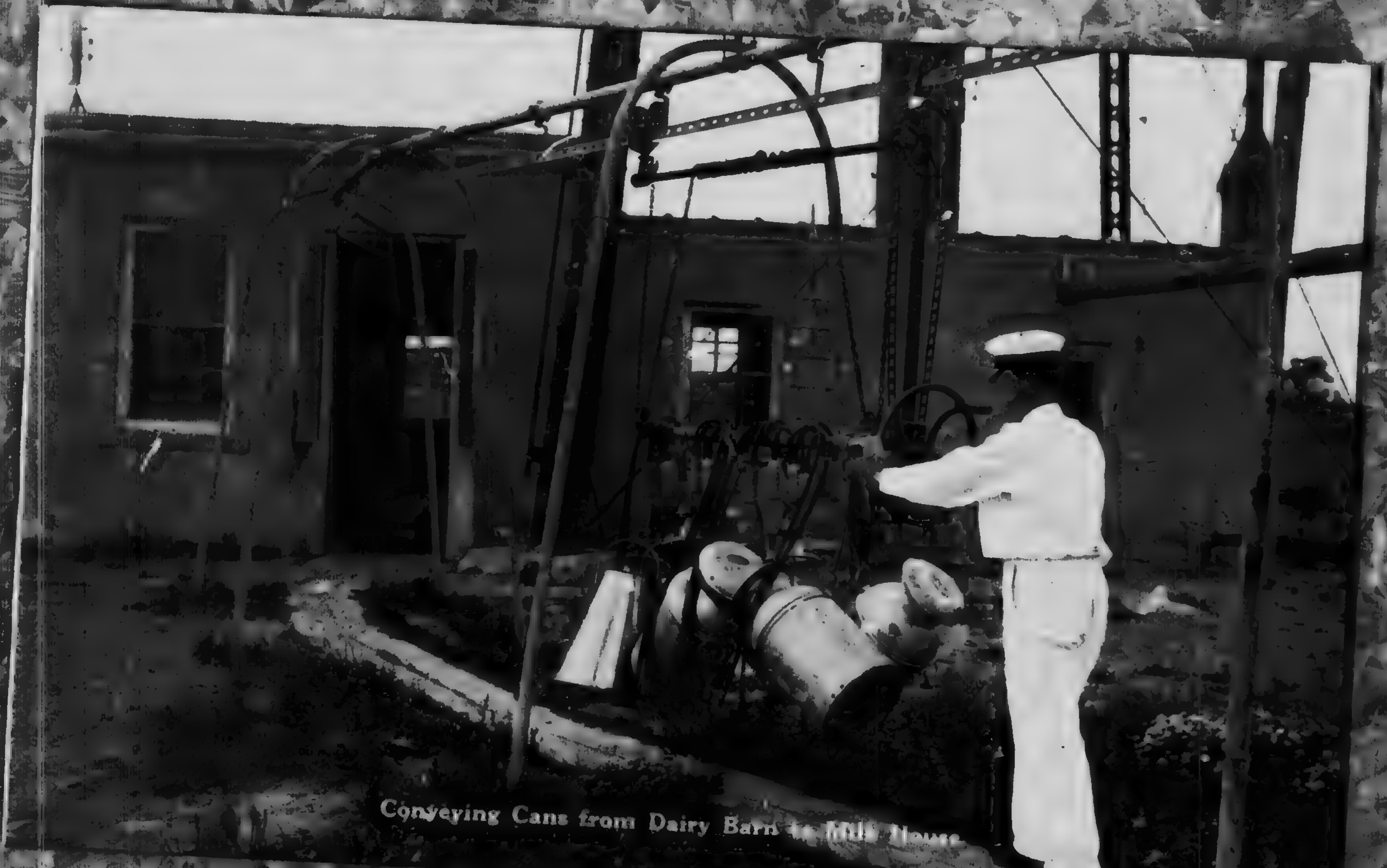
(**Dear**)

Box—This is made throughout of the best, seasoned, Canadian White Pine, tongued and grooved, and is solidly nailed and bolted together. It is reinforced by heavy steel bands. The top edges are all protected by a band of iron. Bottom is made of a one-piece 18 gauge galvanized steel sheet.

Shaft, Lifting Chain, Roller Arms, Handwheel frame, Sprocket Chain, Handwheel, Locking Brake—as in Fig. 431 above.

Size and Capacity—Box is 5 feet long, 24 inches wide and 20 inches deep. Slopes at one end. Holds 12 bushels.

Weight—200 pounds.



Conveying Cans from Dairy Barn to Milk House

BT Feed Carrier, both Ends Sloped, all Steel—Fig. 526

(Danger)

Box—Built of best grade, heavy galvanized steel sheets, securely riveted by tinned rivets. The corners are strongly reinforced with steel straps and two heavy bars encircle the whole box, making it rigid. All joints soldered to make the box water-tight.

Travellers and Roller Arms—Same as in BT Manure Carrier. (See page 258.)

Sizes and Capacities—No. 1, 6 feet 4 inches long, 24 inches wide, 20 inches deep, 12 bushels; No. 2, 6 feet 8 inches long, 26 inches wide, 24 inches deep, 16 bushels. No. 3, 7 feet 4 inches long, 28 inches wide, 24 inches deep, 20 bushels.

Weight—No. 1, 150 lbs.; No. 2, 175 lbs.; No. 3, 200 lbs.

BT Feed Carrier, both Ends Sloped, Wood Box—Fig. 527

(**Dove**)

Box—Made of best, seasoned, Canadian White Pine, tongued and grooved and solidly bolted and nailed together. It is reinforced and supported by heavy steel bands, which render it rigid and capable of handling the heaviest loads. A band of iron protects the top edges. Bottom is made of a one-piece, 18-gauge, best bloom, galvanized steel sheet, which is smooth and easy to shovel from.

Beam—Beam of truck is made of 1½-inch high carbon steel tube. ¾-inch steel eyes pass through this tube and are bolted solidly to the roller arms. From these hang the ⅝-inch steel arms which carry the box.

Travellers and Roller Arms—Same as used in BT Manure Carrier. (Page 258.)

Sizes and Capacities—These are same as for Fig. 526, Steel Box, above.

Weights—No. 1, 150 lbs.; No. 2, 175 lbs.; No. 3, 200 lbs.

BT Hay Rack Carrier—Fig. 528

(Dury)

Platform—Built of 2-inch x 4-inch hard maple timbers, bolted and stayed together. Platform floor is 1-inch planed hard maple.

Rack—Is built of best lumber and bolted together, no nails being used in its construction. Rack may be removed by simply lifting rack stakes out of the sockets, and the carrier used for carrying grain or other purposes.

Travellers and Roller Arms—Same as used in BT Manure Carrier. (Page 258.)

Size—Platform 2 feet 6 inches x 5 feet 6 inches; rack 2 feet 6 inches high x 4 feet 4 inches wide, 5 feet 6 inches long.

Weight—200 lbs.

SPECIFICATIONS

BT Hay Rack Floor Truck—Fig. 332

With Rack, Dusy. No. 1 Without Rack, Dupo. No. 2 Without Rack, Dupont

Platform Frame—Built of 2-inch x 6-inch maple timbers. Large cast iron sockets are placed at the corners which not only hold the stakes, but make a solid joint for the timbers, which are mortised into the sockets. Frame is further strengthened by heavy corner braces and large truss bolts running from side to side. Truck floor is 1-inch hard maple, well planed.

Axle and Wheels—1-inch cold-drawn steel shaft, held by heavy iron boxings. Main wheels with 2-inch face. Swivel castor is very strong, wheel being 6 inches in diameter with a 1¼-inch face

Rack—Is constructed of very best pine lumber and solidly bolted together. No nails are used in the construction It may be removed by simply lifting the rack stakes out and the truck used for other purposes

Size—Platform, 2 feet 6 inches x 5 feet 6 inches; rack 2 feet 6 inches high, 4 feet 4 inches wide, 5 feet 6 inches long. No. 1, has main wheels 12 inches diameter. No. 2 has main wheels 16 inches diameter.

Weight—275 lbs.

BT Platform Can Conveyor—Fig. 60

(Dip)

Platform Frame—Is constructed of 2-inch x 4-inch hard maple, solidly bolted together. Platform floor is 1-inch hard maple, carefully planed.

Truck and Roller Arms—Are the same as in the other feed carriers. Hanger arms are ⅝-inch round steel, bolted solidly through platform frame.

Capacity—It will handle three 8-gallon cream cans.

Size—Platform is 2 feet x 4 feet.

Weight—100 lbs.

BT Windlass Carrier for Large Cans—Fig. 529

(Durn)

Construction—Windlass and handwheel, also roller arms, are the same as in BT Manure Carrier. A heavy steel bar is suspended from the windlass chain by means of a pulley, and from this steel bar two steel finger bars are hung, which grip the handles of the can.

Capacity—It will handle large 30-gallon milk cans.

Weight—100 lbs.

BT Double Roller Arm Conveyor—Fig. 581

(Durg)

Roller Arm—Roller arm and travellers are the same as used for BT Manure Carrier. (See page 258.)

Hook—¾-inch forged hook is suspended from roller arm and two ½-inch grappling hooks, which engage with handles of a milk can.

Weight—100 pounds.

BT 3-Can Conveyor, Raise and Lower—Fig. 582

(Durf)

Windlass—In every respect the same as windlass for BT Manure Carrier. By means of rollers or pulleys a heavy steel beam is suspended to which ½-inch hooks are attached to engage with milk can lugs.

Weight—125 lbs.

BT Hay Carriers

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INDEX

The Mill Car in Operation

Every Farm Needs A Hay Carrier

Very few barns can be found in Canada today that have not a hay track. Practically all farmers agree that a hay track is an absolute necessity.

It saves a great deal of hard, tiring work. It enables a farmer to get along with less help. It is equal to two good men for unloading in high barns, and for topping off in the mow, it is equal to three men.

The horses do the work, and a boy can drive them. The heavy lifting is all done by the horses. A hay carrier cuts out the hardest part of the harvest work. The largest load may be unloaded in a few minutes. In this way, more loads a day are stored safely in the barn.

Labor is costly in these days. A hay carrier saves enough labor to pay for itself in one harvest. By saving labor, it saves board and lodging and extra help in the kitchen.

More hay can be put in the mow when a hay carrier is used. A good sling outfit will handle hay, sheaves of grain, corn, peas, or in fact, practically anything. Nothing is blown away or wasted. If hay or straw is pitched into the barn by hand on a windy day, some is bound to be lost, particularly if it is short.

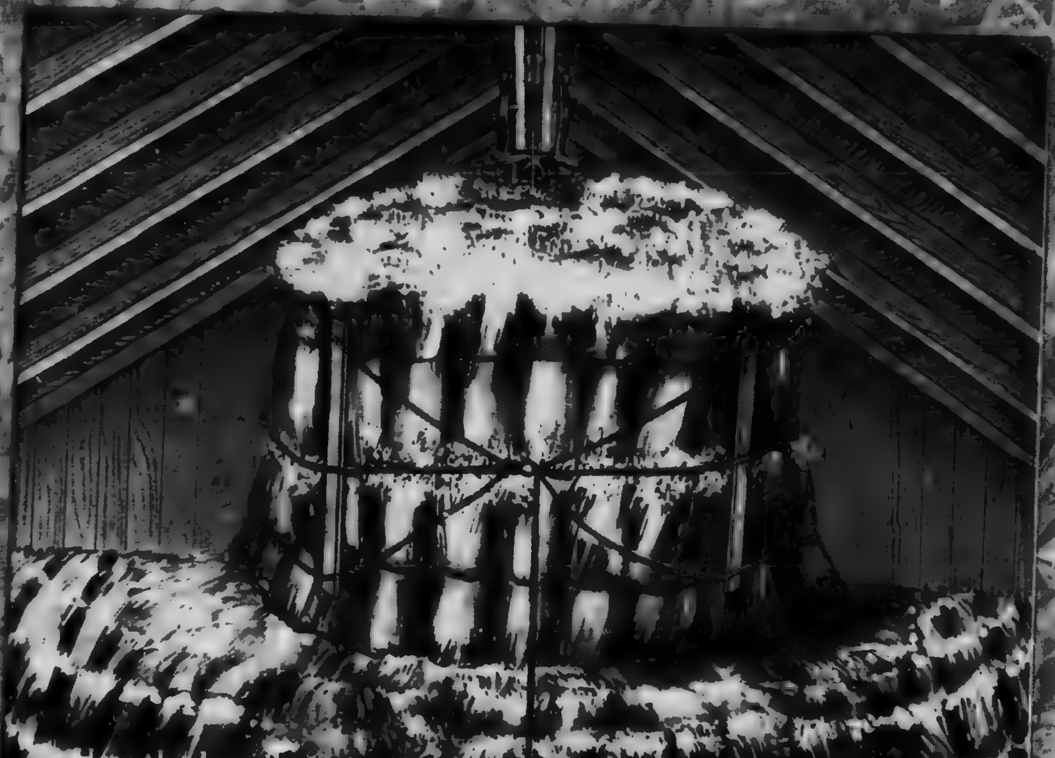
The need of a Hay Carrier is realized during the uncertain weather of hay time or harvest. The time saved by the Hay Carrier is often the salvation of the crop.

The slings are hooked to the binding pulleys of the carrier and the team driven while they lift the bundle up to the peak of the barn. The car runs into the barn as soon as the load reaches it and dumps the hay in the mow. The most convenient time to put in a hay track is when the barn is being built, as the work can then be done from above. A hay carrier can, however, be put in any barn at a small cost. For information on installing see pages 318 to 320.

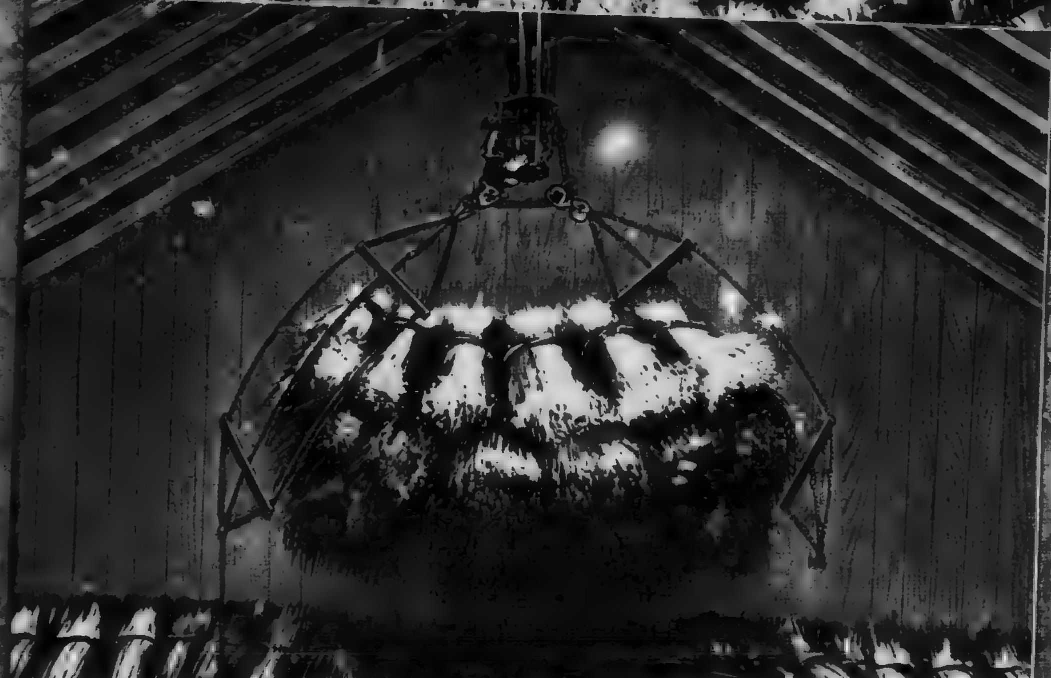
A good hay carrier will last for years. Some of the first outfits installed over 40 years ago are still in use and giving good service.

It is over 30 years since we started to make and install hay carrier outfits. In this time, we have purchased the business of six Canadian firms making hay carriers. Good ideas were obtained from them all. We have improved their goods and with the original BT line they give us a very substantial basis for the statement that the BT line has more strong features than any other. The fact that we build over 75 per cent. of the hay carrier goods sold in Canada is evidence that Canadian farmers appreciate the advantages of BT outfits.

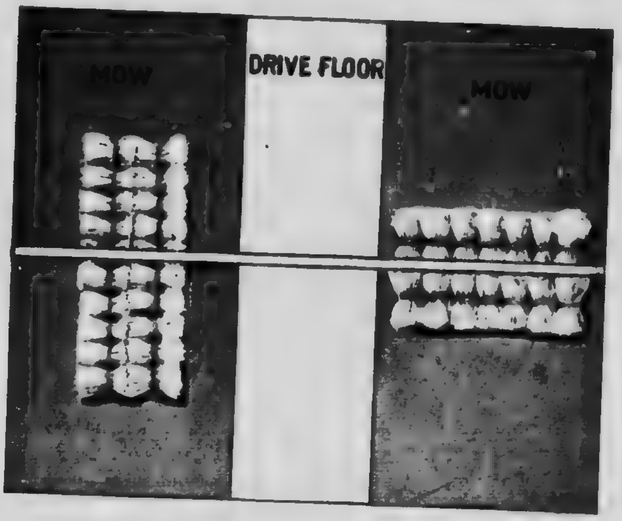
Our idea has always been to make the hay carriers, forks and slings and all parts of the outfits heavy and strong enough to do the hard work demanded of them. This has accounted for our success. A BT Hay Carrier Outfit weighs about 50 per cent. more than others. A Hay Carrier has very heavy work to do and must be strong. The weights given in this section of the catalogue show just what extra value you get by purchasing a BT Outfit.



How the bundle is dragged into the mow when the mow is full.



How the bundle drops clear of the trip rope.



Right Way Wrong Way
The Right and the Wrong Way to Drop the Bundle into the Mow

The Big Lift Hay Carrier—Fig. 464

(Laura)

The Big Lift Carrier is built especially for sling work, but it can be used with either one or two forks. In sling work it excels. Loose binding pulleys are used. These pulleys, instead of being parallel with the car and track hang at right angles to the track. The Big Lift Carrier takes the bundle into the mow just as it lies on the load so that the bundle is thrown into the mow at right angles to the track and lies lengthwise in the mow. See illustration above.

The advantages of the Big Lift Carrier are as follows:

1. The bundle is deposited lengthwise in the mow, thus saving mowing.
2. The bundle when tripped cannot possibly fall on the trip rope. When the bundle is carried in the old way, parallel to the track, the trip rope must pass under the bundle. If the trip rope happens to be attached to that half of the sling farthest from the operator the bundle falls upon it.
3. The Big Lift Carrier saves a great deal of worry when placing the slings on the rack. With other cars it is always necessary to see that the half of the sling to which the trip rope is attached will be nearest to the drive floor when the bundle is hoisted in the barn. This is quite abolished by the Big Lift Sling Car.
4. When filling the top of the mow, the last bundle frequently has to be dragged in. When the Big Lift Car is used, the bundle is dragged in on its end, so that the slings can easily be pulled out. Other cars drag the bundle in on the slings. When the bundle is tripped, it falls on them and they have to be dug out.
5. The Big Lift Carrier does not injure the draft rope, a most important feature. The Big Lift Carrier differs from other cars in the con-

struction of the rope grip. It is perfectly smooth; there are no teeth or ribs to injure the rope. Furthermore, it never drops squarely on the rope; in gripping it travels with the rope and sets gradually. This does not mean that the rope slips through the grip. The grip travels with the rope and clamps firmly where it first takes hold, without chafing or wearing the rope.

A draft rope will last three times as long in a Big Lift Carrier as in any other. Considering the high cost of rope this advantage is one of the first to consider in buying a hay carrier.

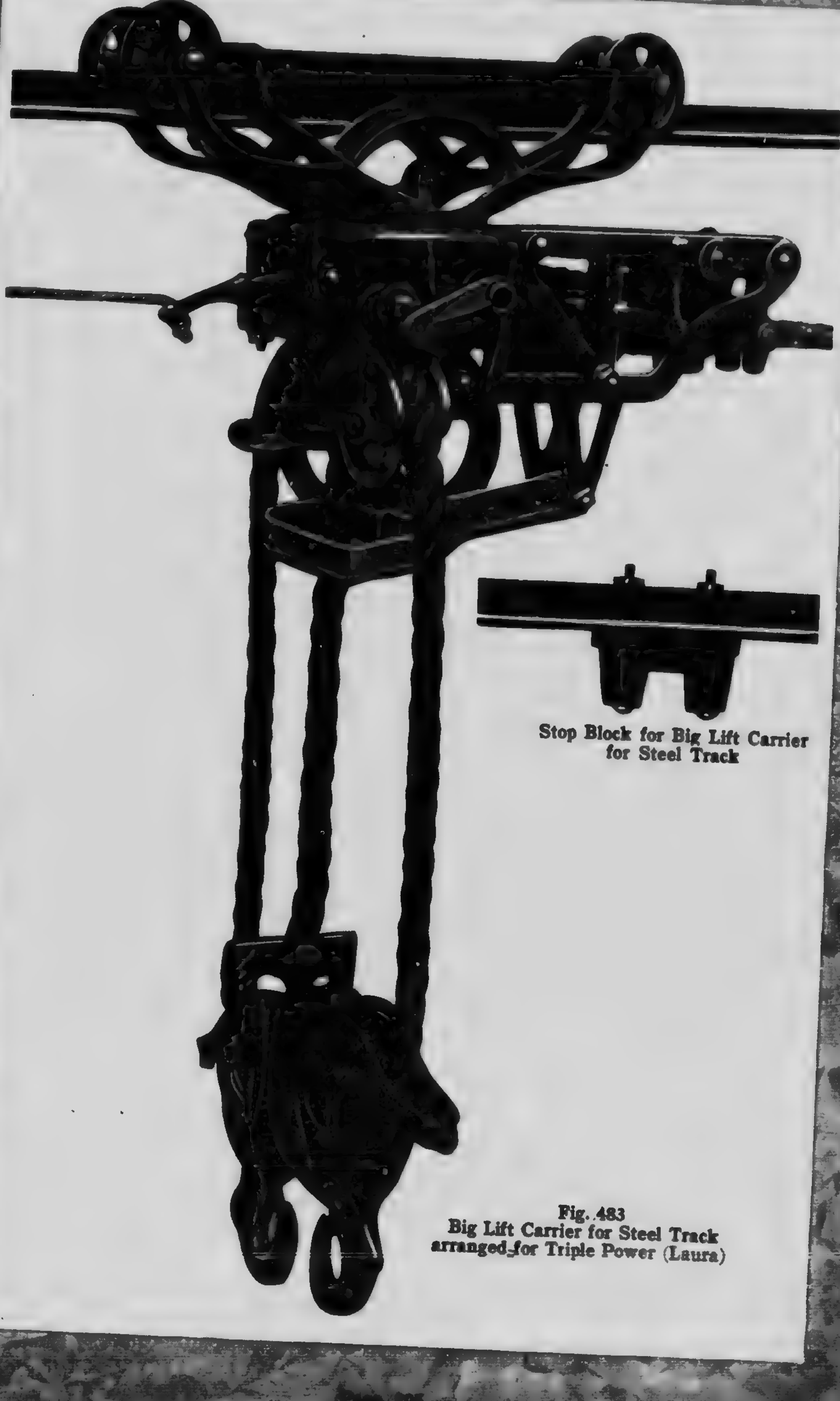
6. The Big Lift Carrier will work with either double lift as in Fig. 464, pages 296-297, or triple lift as in Fig. 483, page 295. One horse will do the elevating when triple lift is used.

If a team is used, always work the carrier in double lift, as it is quicker this way and takes less rope.

7. A bundle can be raised more easily in the Big Lift Carrier than in any other. The draft pulley swivels and aligns itself with the draft rope. No matter how the draft rope may be spread when the bundle is being shirred, the draft pulley will swing out and align perfectly with the rope. See illustration on page 297.

   The rope does not suffer from rubbing or binding. The draft pulley is large and the rope ways are large. For these reasons the draft rope passes through the car with little friction, and the less friction the more easily the bundle can be raised.
8. The Big Lift Carrier runs on the best track on earth, the BT Single Rail Steel Track. This is described in detail on pages 302-303.
9. The Big Lift Carrier returns to the stop block itself. A weight is attached to the return rope which brings back the car after the bundle is dumped.
10. The Big Lift Carrier will carry the bundle into the mow at any elevation. The car can be tripped off the stop block as soon as the bundle is elevated high enough to clear the hay or grain already in the mow. This is a great advantage, because it saves much elevating. It leaves the bundle hanging far down from the track so it can be swung over to one side of the mow and tripped there.
11. The Big Lift will trip off the stop block no matter how the bundle swings, because no plunger head has to enter the car.
12. The Big Lift has large track wheels, these being 4 inches in diameter and running on 1 inch steel pins. Therefore it runs easily on the track.
13. Owing to the large rope ways and the construction of the grip it will work equally well with ¾-inch, ⅞-inch or 1 inch rope.
14. The Big Lift is a swivel carrier and can be reversed quickly for a centre drive barn.
15. The Big Lift, true to its name, is constructed strongly in every part so that it will endure the heavy strains put upon it in harvest time. In two or three lifts it will handle the largest load a team can draw to the barn. It weighs 65 lbs.

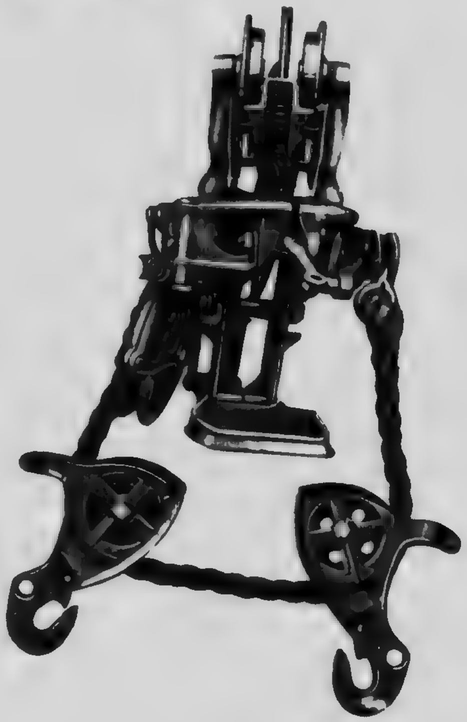
    The distance between the bottom of the track and the bottom of the bundle is approximately 12 feet, when the bundle is raised as high as it will go.



Stop Block for Big Lift Carrier
for Steel Track

Fig. 483
Big Lift Carrier for Steel Track
arranged for Triple Power (Laura)

Stop Block for Big Lift Carrier for Steel Track



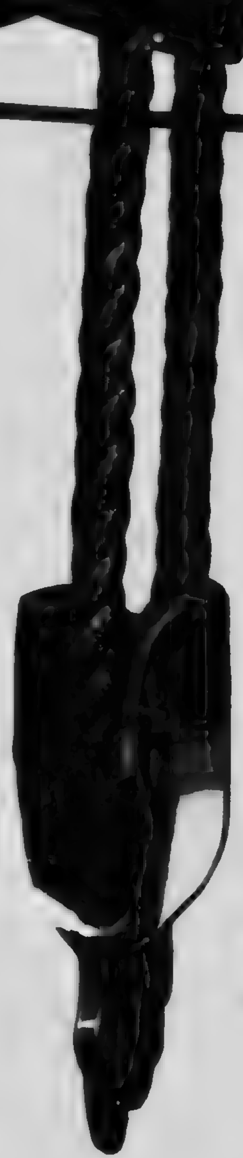
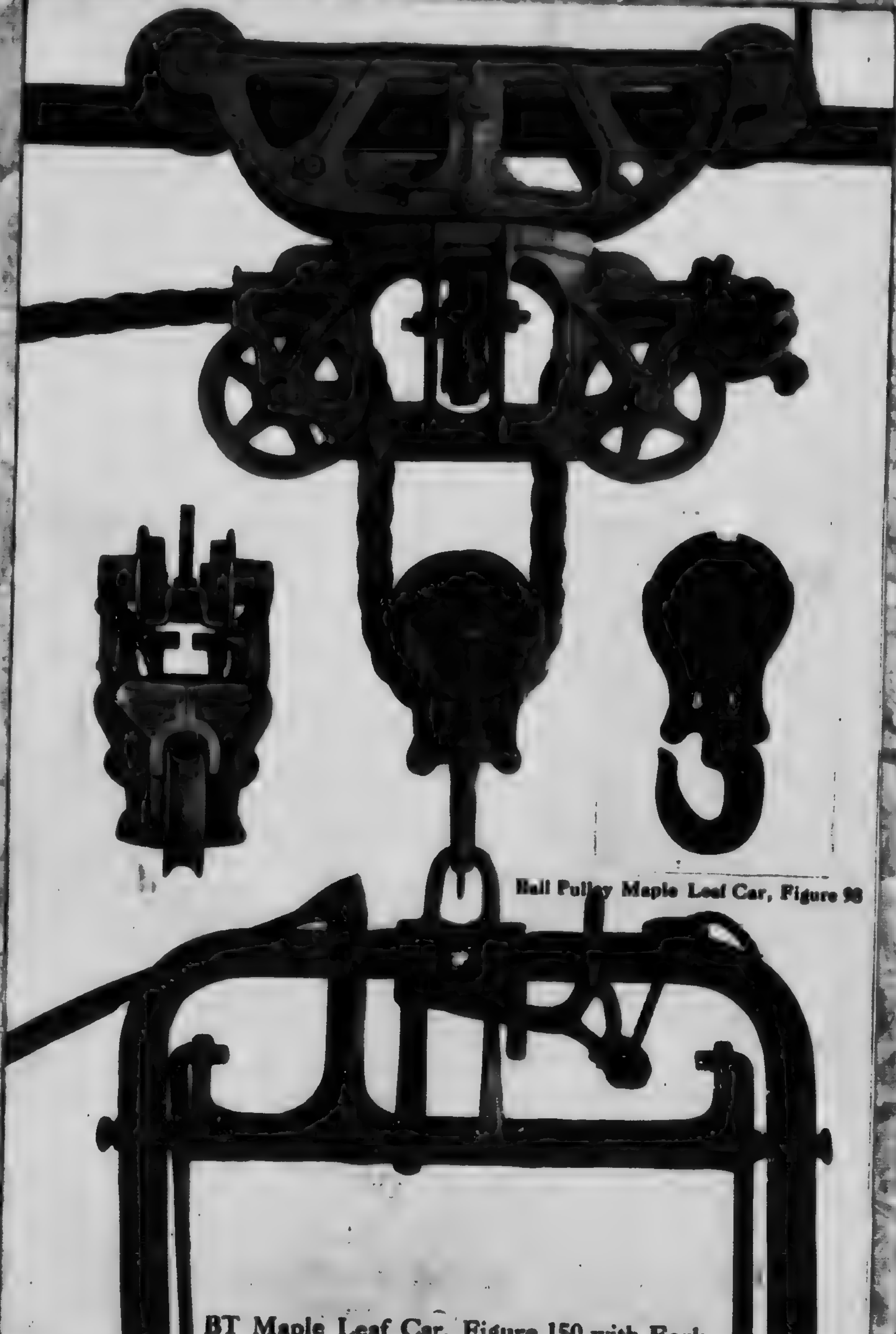


Fig. 464—Big Lift Sling Carrier, for Single Rail Steel Track Arranged for Double Power (Louden)



Ball Pulley Maple Leaf Car, Figure 98

BT Maple Leaf Car, Figure 150 with Fork.

The Maple Leaf Hay Car—Fig. 159

(**Jessie**)

(**Patented**)

The Maple Leaf Car is especially constructed for work with a fork or short slings.

It is a heavy, well built car, and will stand the strain of the harvest work of a lifetime. It has a stoutly braced, malleable iron frame. Spreading on the track is impossible. It weighs 34 pounds with its bail pulley.

The Maple Leaf Car has a large, open, flaring mouth which receives the bail pulley from any direction. No matter how the rope may twist the bail pulley is sure to register in the car.

There are two rope wheels, each 3½ inch in diameter, having 1-inch axles and chilled wheel bearings as hard as flint. Some cars have only one of these rope wheels and it is an inch smaller than the wheels of the Maple Leaf. Obviously a car with one rope wheel can only last half as long as a car with two of them, for the rope wheel has more hard work to do than almost any other part of the carrier.

Large (2½-inch) travellers make it run easily and smoothly, and cause it to draw back easily. Note the wide bearing of the travellers on the track—almost twice as great as in other carriers.

There is a 14-inch wheelbase, so the strain is widely distributed on the track. The car is designed compactly so that it carries its load higher than any other style.

The bail pulley swings freely on its axle after registering in the car, so that a load can be drawn over the high beams or into a mow nearly full without tipping the carrier or injuring the bail pulley.

The grappling hooks engage with the rim of the bail pulley frame, so that the points of the grappling hooks are not worn when the bundle swings.

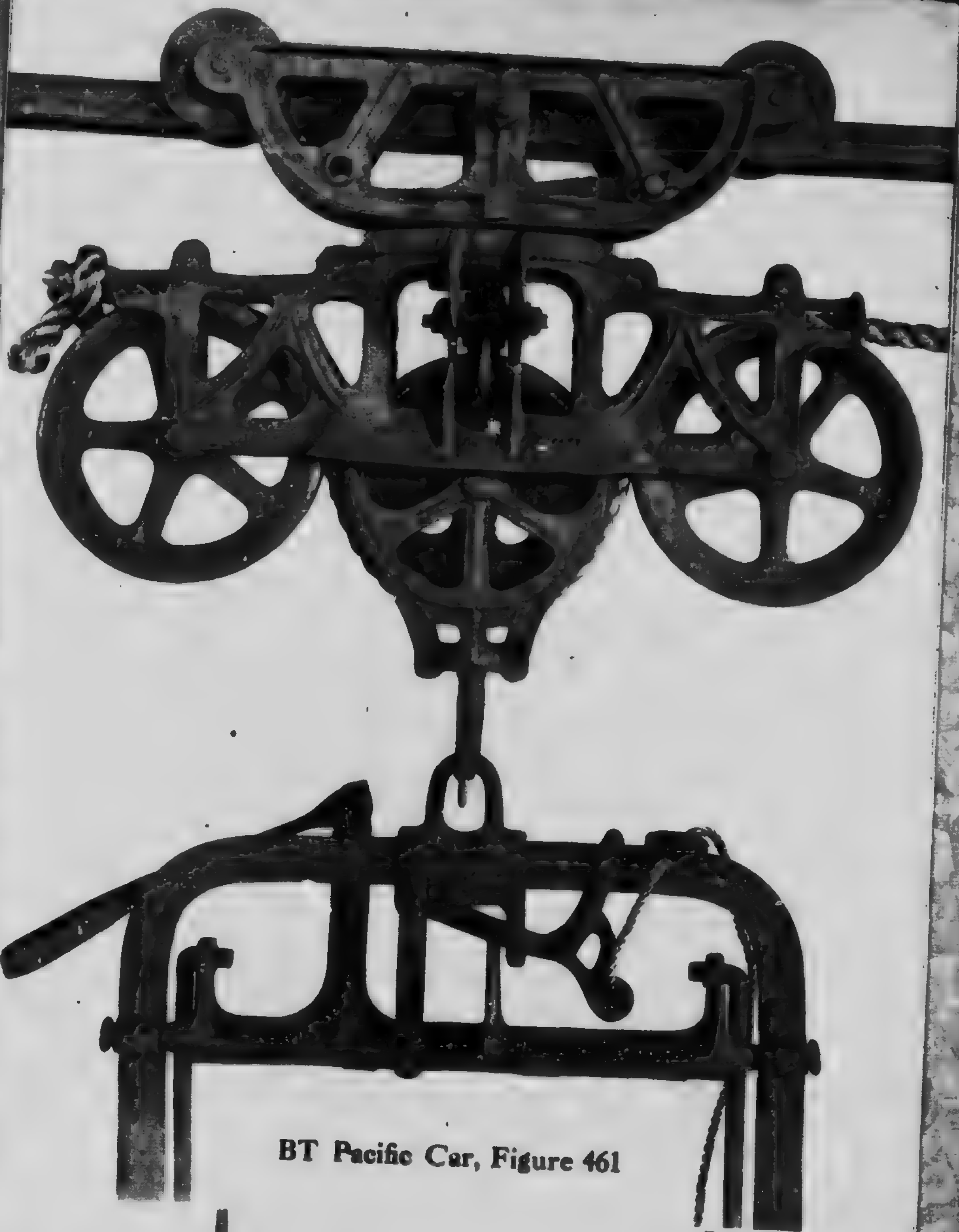
There is a hole through the bail pulley hook, so that a cotter pin may be used to secure fork or sling chain. The sides of the bail pulley fit closely to the sheave and expose no corners or edges to injure the rope.

The car is reversible.

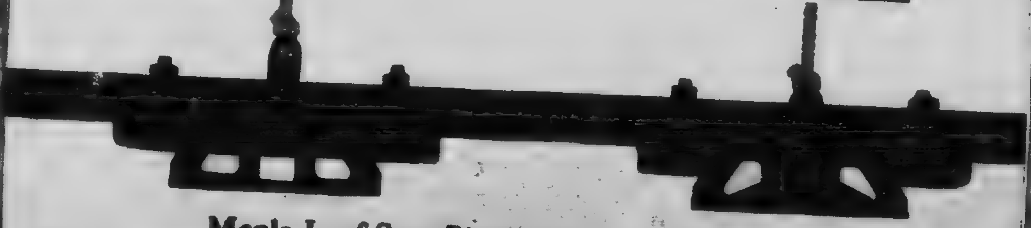
When it is necessary to change it from working in one end of the barn to work in the other, it can be reversed anywhere on the track and then pulled to the place it is required. Where desired, a raise and lower stop block is furnished, which can be lifted from the floor to allow the carrier to pass with its load.

This stop block is illustrated at the bottom of page 300 in Fig. 145. It is used where there are two drive floors and it is desired to take the carrier past one of them without tripping. The gate is then raised as shown on the left hand side of Fig. 145.

The Maple Leaf Car is finished in grey enamel. This is costly but is non-rusting, protects the car and does not gum up the working parts.



BT Pacific Car, Figure 461



Maple Leaf Stop Block and Gate, Figure 145

The Maple Leaf Car No. 150, is furnished complete with one bail pulley and stop block. It is built for use on the Single Rail Track.

The distance between the bottom of the track and the bottom of the bundle is approximately 10 feet, when the bail pulley is locked in the car.

Pacific Hay Car—Fig. 461

(Acclaim)

(Patented)

Many farmers are demanding a car with very large rope wheels, for large rope wheels are easier on the rope and they lighten the draft.

Our Pacific Car is built to suit these wants.

The rope wheel is 7 inches in diameter and the bail pulley has a 7-inch sheave.

This car is also supplied for use with a cable. In many parts of the country, farmers are now using flexible cable instead of a fibre rope. This is especially popular on the Pacific coast where ropes tend to rot quickly, owing to the damp climate.

The prevailing scarcity and consequent big prices of rope are also encouraging the use of the cable. It is to be especially recommended for outdoor work, in end lift barns, for instance, where the rope is exposed to the elements a great deal. The grooves of the rope wheel is V-shaped to suit ⅜-inch cable, and the frame hugs the rim of the wheels so tightly that the cable cannot possibly get off.

The upper part of the car is the same as our Maple Leaf Car. It has the same travellers and the frame is similar: wheelbase, flaring mouth, swinging bail pulley, raise and lower stop block, reversible and swivel features are identical with those of the Maple Leaf Car. The lock is the same and the car runs on the same track.

A ⅜-inch wire cable should be used and we can supply it if ordered.

Fig. 461, Pacific Car, is always shipped with bail pulley and stop block. Weight, 50 pounds.

What Users of Our Hay Carriers Say

Beatty Bros. Limited.

Dear Sirs:

Crystal City, Man., July 30, 1919.

Have received your hay carrier and rope. I have it installed and have tested it. I find it works fine It holds the load right up and the rope does not slip through the car as it did with the old one. I much appreciate the interest you take in your machines and business. I am enclosing P.O. Order. Thanking you very kindly. I remain,

Yours,

R. CUDNORE.

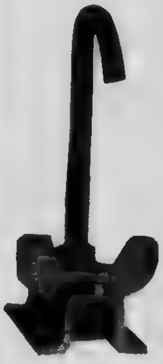


Fig. 67
BT Single Rail
Steel Track End
Stop (Cake)

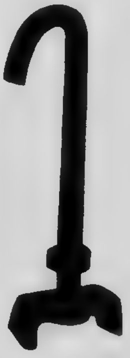
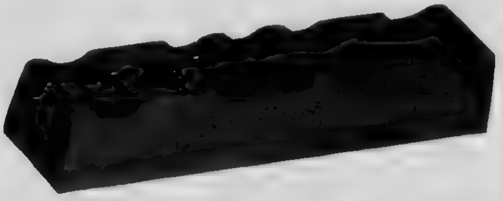


Fig. 65
BT Single Rail
Steel Track Hanger (Cushion)



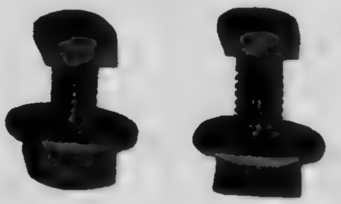
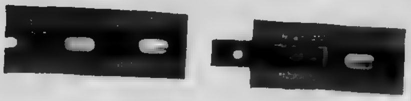


Fig. 69
BT Single Rail Steel Track Couplings
(Cook)



Showing How Track Couplings are Used

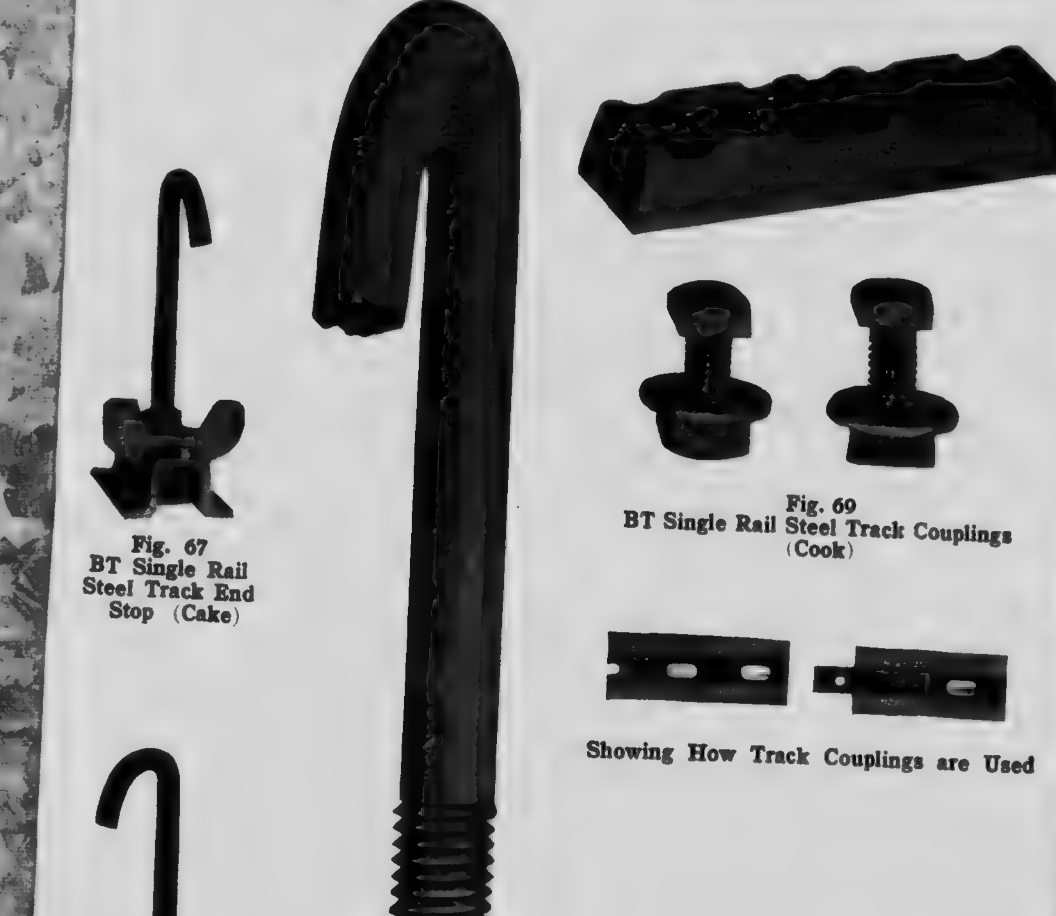
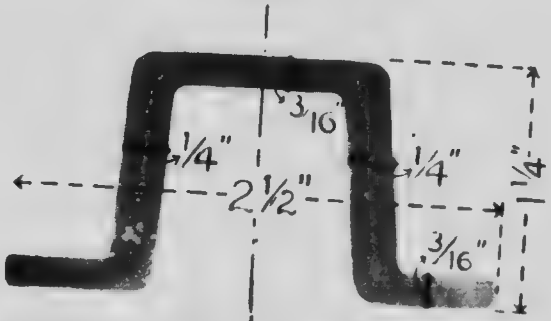


Fig. 68
BT Single Rail Steel
Track (Castor)

BT Single Rail Steel Track—Fig, 68

(Castor)

(Patented)



Cross Section BT Single Rail Steel Track—Full size

No part of an outfit is more important than the track. Light tracks will not stand where the rafters are three feet apart and often give trouble where rafters are spaced 2 feet apart.

BT Single Rail Steel Track is stronger and heavier per foot than any other steel hay carrier track built. We guarantee it to carry a ton with three foot spans. It will carry twice the load of any other track without bending.

It weighs two and two-thirds pounds per foot, which is over half a pound more than other tracks. It is made of the best high carbon steel that can be bought.

Fig. 68 shows the shape of the channel. Track has a width of 2½ inches and a depth of 1¼ inches. The top is 3-16 inch thick and sides ¼-inch thick. Note the wide flange for the travellers to run on. It allows a wider wheel tread than the flange of other tracks.

The top of the track is punched, so that the hangers can be attached where desired. The lower hanger nut, when tightened, fits into the deep groove of the track, so that it cannot turn off. BT Track Hangers are correctly shaped. The bend is not perfectly round. It is quite sharp and keeps the weight aligned with the shank so that the hanger will stand greater strain.

Sections of the track are held together with heavy, malleable joint clips which are bolted to the track, the bolts passing through the end holes of each bar of track. Sagging or separation is impossible. All other styles of tracks are simply clamped together and depend on friction to hold the track at the joint.

The stop block is not clamped to the track, but bolted, so it cannot slip along the track.

We own the rolls for making this track, and it cannot be supplied by any other firm.

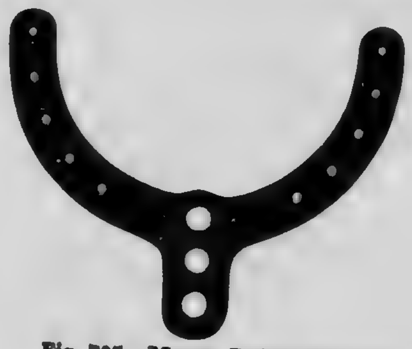


Fig. 735—Master Rafter Bracket for 6-inch Rafter (Cussit)

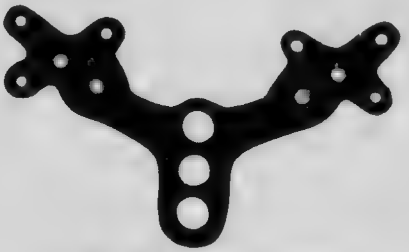


Fig. 50—BT Standard Rafter Bracket (Crack)

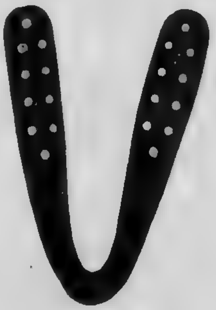


Fig. 227
BT Ridge Pole Rafter Bracket (Candle)

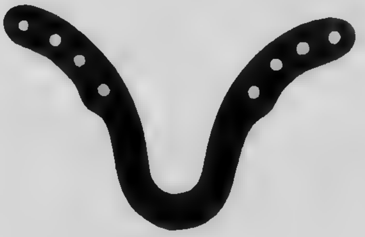


Fig. 51
BT V-shaped Rafter Bracket (Cricket)

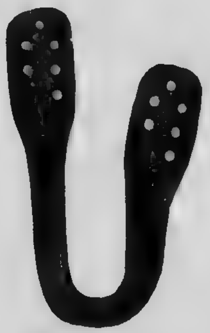


Fig. 226
BT Side Rafter Bracket (Cattle)

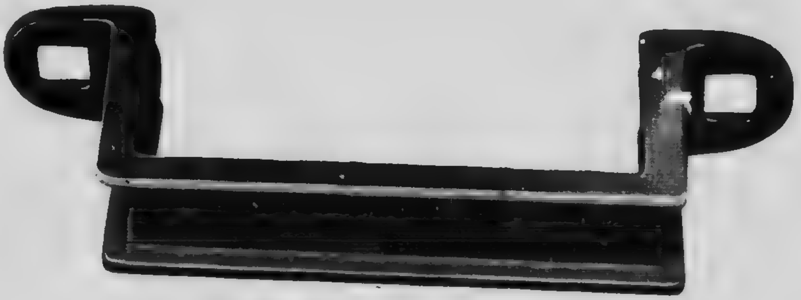


Fig. 692—BT Stake Clips (Almost)

Rafter Brackets

Fig. 50 is our Standard Rafter Bracket. It is made of soft, malleable iron and can be bent to suit the shape of the rafter. It is provided with three holes, so that the height of the track may be adjusted. This feature also prevents the hangers from raising or lowering as the weight comes on the track in front of the next rafter bracket. It also makes it possible to drop the track towards the stop block so that the car will return more easily.

Fig. 226 is our Side Rafter Bracket for hanging track to the side of the roof. Often two or more tracks are put in very wide barns and the bracket can be used to attach the track for almost any pitch of roof.

Fig. 227 is the Ridge Plate Bracket for hanging the track parallel to a joist or ridge pole.

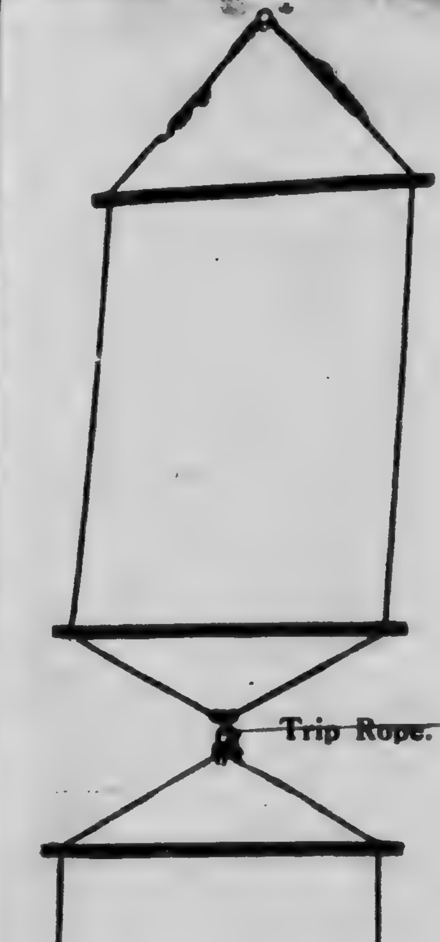
Fig. 738 shows the BT Master Rafter Bracket for sawn rafters. It is designed to run right across the rafter. No other bracket will reach up past the centre of a sawn rafter and the result with most brackets is that the rafter will split because it cannot carry the strain. The arms of the Master Rafter Bracket are 6 inches long and reach right to the top of a 6-inch rafter, so there is no possibility of it splitting. The nail holes are not clustered nor are they in a direct line, therefore they do not split a sawn rafter. It is provided with three holes which permit the track to be sloped to the stop block. It is made of malleable iron and weighs ½ pound.

Figure 51 shows the bracket commonly used twenty years ago. This bracket is designed so that it is not weakened by the nail holes. Where the holes are, the bracket is wider. This is also true of Figs. 226 and 227.

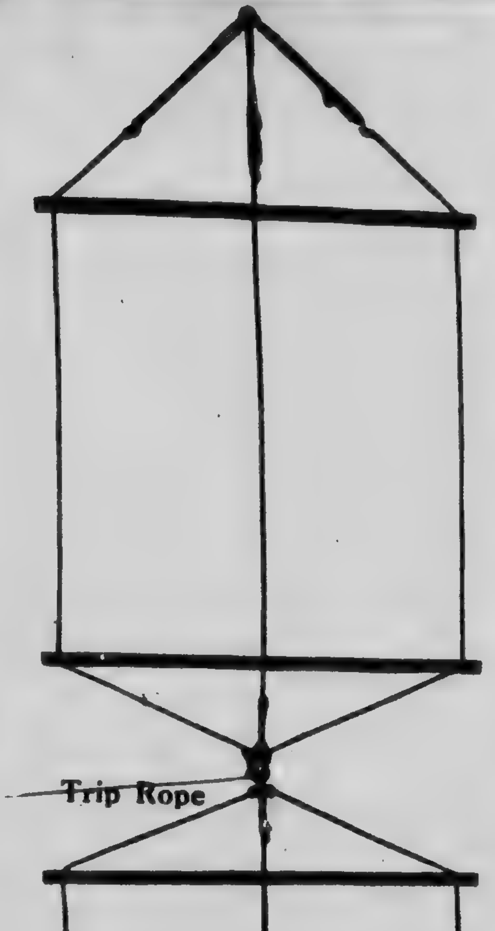
In ordering hay carrier outfits, always specify one hanger and one rafter bracket for each pair of rafters, unless the rafters are closer than 2 feet, in which case, one for two pairs of rafters will do.

BT Stake Clips—Fig. 692

The BT Stake Clip, Fig. 692, is used to attach the stakes of a hay rack to the waggon. It is furnished in sets of four; two sets are needed if long centre strip slat slings are being used, one set for the front of the waggon and one set for the back; but three sets should be purchased for the purpose of short rope slings, six clips (that is 1½ set) on each side; none are used at the end for the short slings.



BT 4 Foot Centre Trip Slings,
Fig. 29.



BT 6 Foot Centre Trip Slings,
Fig. 172.

BT Centre Trip Slings

(Fig. 29, Violet. Fig. 94, Tulip. Fig. 172, Poppy)

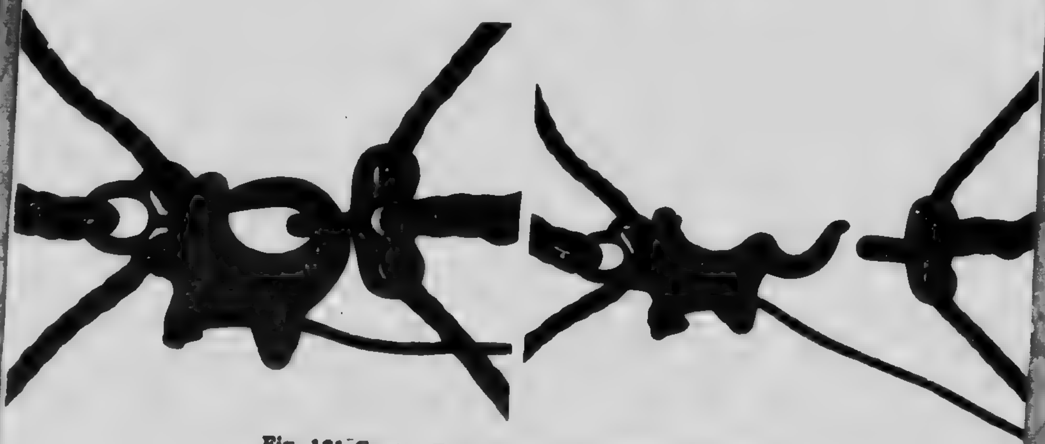


Fig. 121 Centre Trip Sling Lock Open and Closed

The rope in BT Centre Trip Slings never kinks because a special long fibre, soft laid manilla rope is used in them. The slats are made of B.C. Fir. 1⅜ x 1¾ inch, well oiled, and the ropes are attached by adjustable hooks. The slings are adjustable. They can be lengthened or shortened to suit the rack.

Fig. 121 shows the trip for these slings. It is made entirely of malleable iron. It cannot be broken, nor can it be opened when you step on it. It will trip no matter which way the sling is lying on the wagon, and it will go together no matter which way the halves of the sling may be lying.

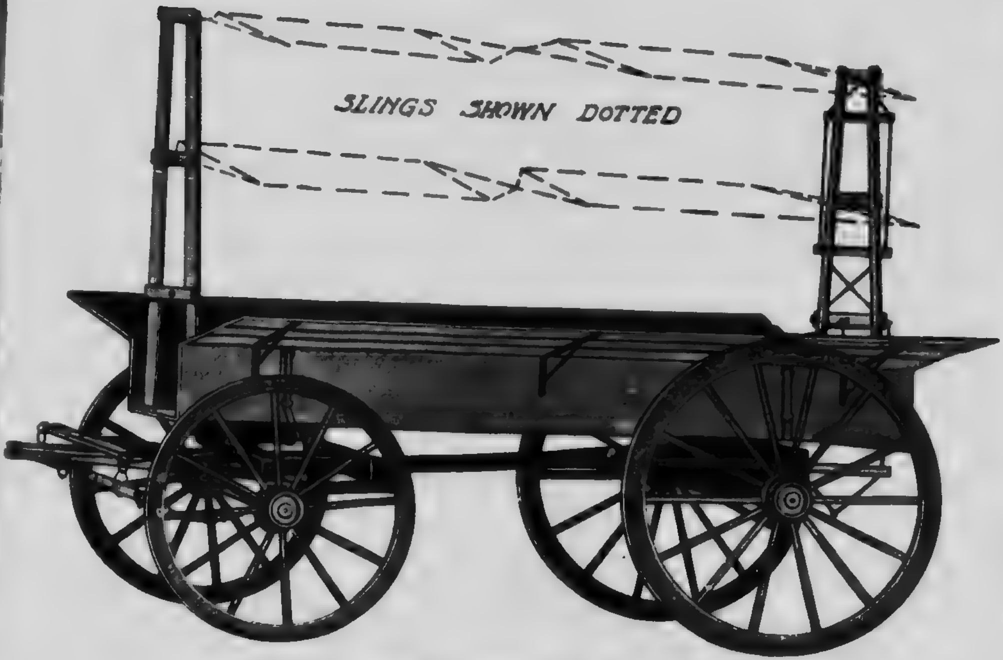
The locking of the trip is an easy matter. Any boy can do it.

We make BT Slings in three widths: 4-foot, 5-foot, and 6-foot.

The four-foot slings, Fig. 29, have two ropes and four spreaders. The rope used is ⅝-inch. A set of three weighs 60 pounds.

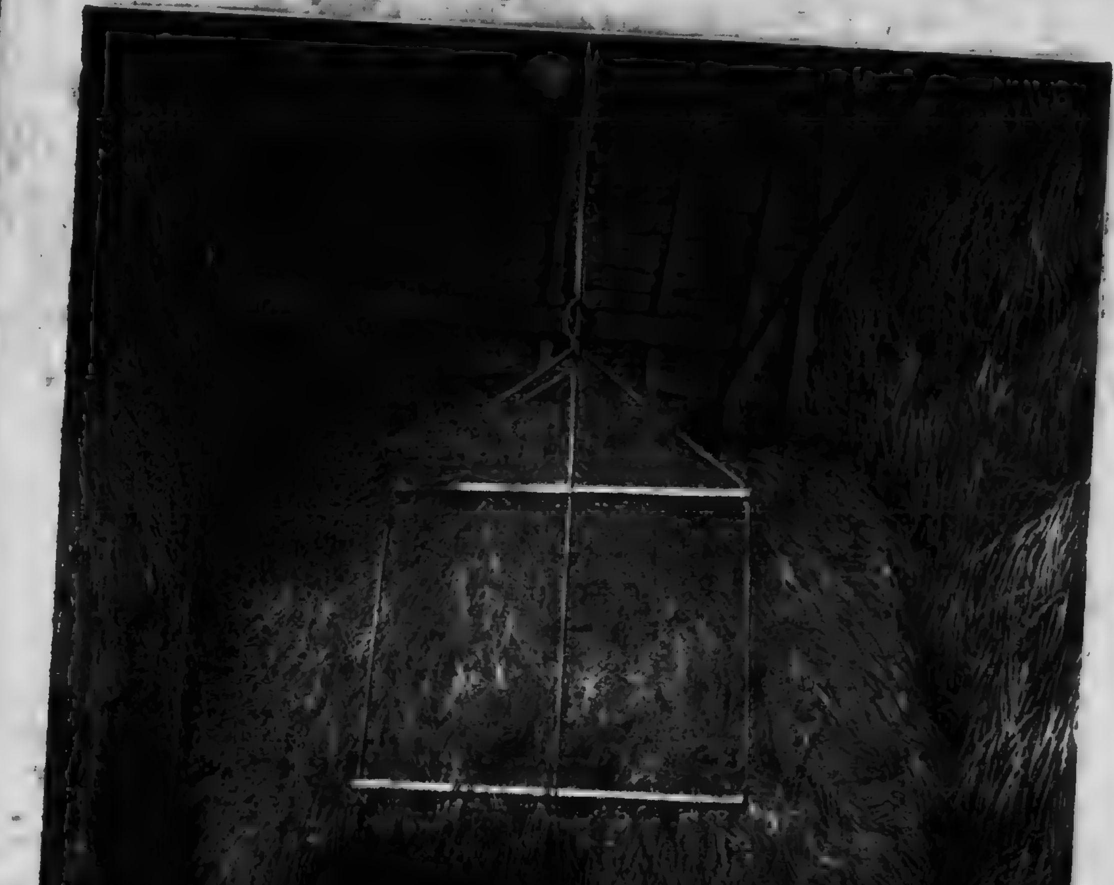
Fig. 94, five-foot slings have three ropes and four spreaders. Rope used is ½ inch. A set of three slings weighs 70 pounds.

Fig. 172, six-foot slings have three ropes and four spreaders. Rope used is ½-inch and spreaders are extra heavy. A set weighs 85 pounds.



How Slings are placed on the wagon.

Taking off bundle with Slings and Self-binding Pulleys.



Three Bundles Clear the Rack

Page 300

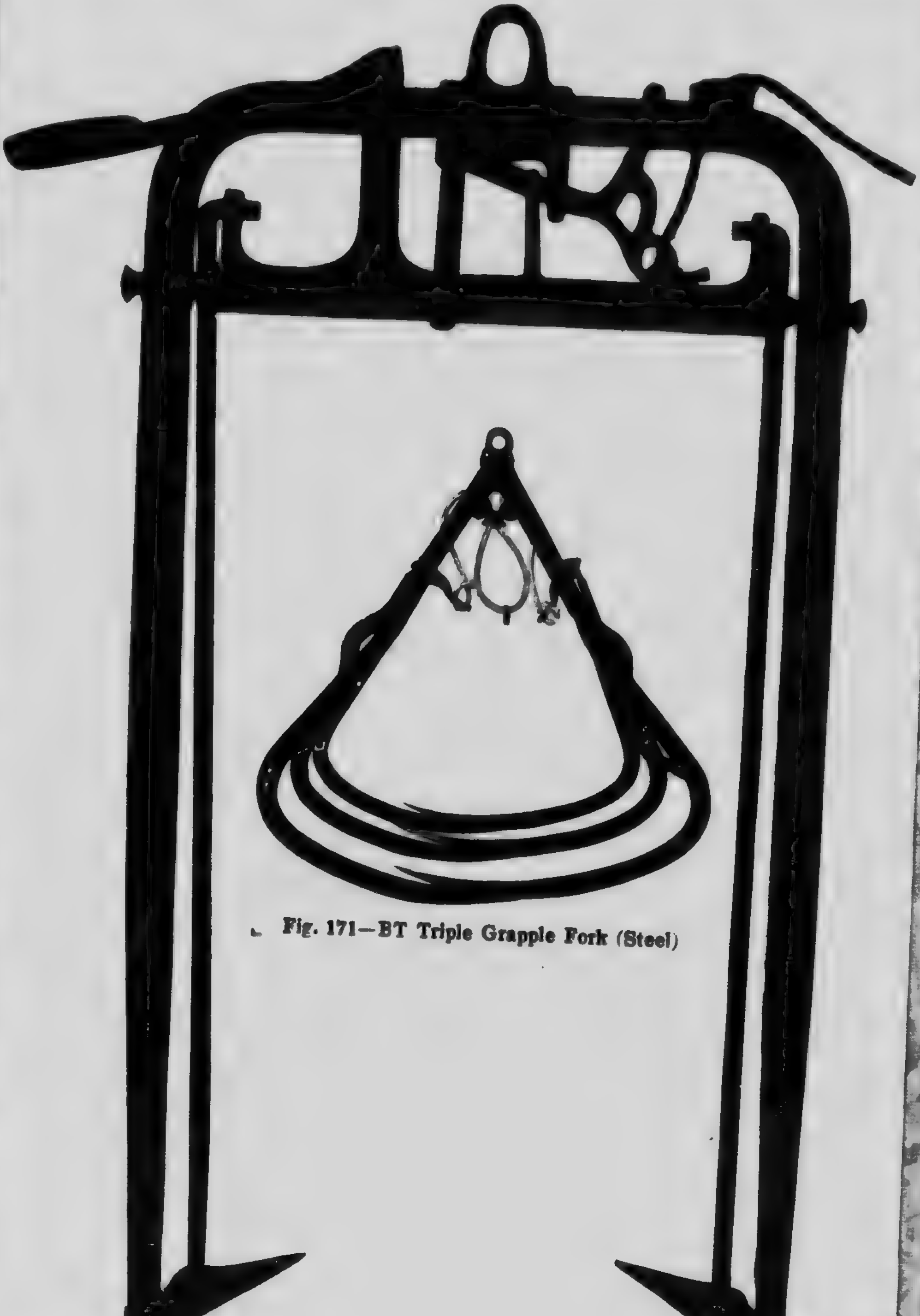


Fig. 171—BT Triple Grapple Fork (Steel)

Fig. 25—BT Square Top Fork (Wood)

BT Square Top Fork—Fig. 25

(Code Word, Wood)

(Patented)

The BT Square Top, Lock-lever Fork is the most popular fork in Canada. Many more are sold than all other styles. Many thousand of these forks have been in use for over 30 years without giving the users the slightest trouble.

It is made entirely of steel and malleable iron. Sides and top are made of 1¼ x ⅜-inch steel. It weighs 24 pounds.

The points are long and sharp so the fork can easily be pushed into the hay. As the fork is very rigid and strong, it stands stiff and the prongs are kept tight and in alignment no matter what pressure is put on them while they are being forced into the hay. The fork locks open as well as closed. The lock is positive, requiring no spring.

It has great capacity, the distance from the rocker bar to the points being 32 inches. It is 3½ inches longer than many forks. The rocker bar is close to the top, bringing the load very close to the top of the barn.

The long lever used in closing the fork folds down when the fork is locked and is out of the way.

This fork will trip in any position.

It is finished in black japan.

BT Triple Grapple Fork—Fig. 171

(Code Word, Steel)

When open this fork has an exceptional spread of 68 inches. It will carry a big bundle.

Tines and arms are of the best high carbon steel, well sharpened and polished, and the fork is strongly built to stand heavy work.

Previous to returning fork to the load, the operator may close it as in the photo by pulling sharply on the trip rope.

Fig. 171, Triple Grapple Fork, weighs 51½ pounds.

Beatty Bros. Limited
Fergus, Ont.

Scarboro Jct., Sept. 27, 1915.

Dears Sirs:

I may tell you how pleased we are with the stable equipment and grain unloader we purchased from you last year. When mows were getting somewhat full it required four men to take a load off in 50 minutes. This year with only two men and your lifter we took off loads in 8 minutes and never sweat a drop. The men thought the hauling of the harvest was child's play. Our stable is 100 per cent. better in many ways. The light is not obscured by ugly partitions and stalls. The stable is more sanitary. The cows look better and feel more contented than when tied by the neck to one side of the manger. The material and workmanship of both outfits cannot be excelled. I am sure they are the best on the market. With your equipment and a silo, dairying is a pleasure, and no doubt the profit will follow.

Yours truly,
F. K. REESOR.

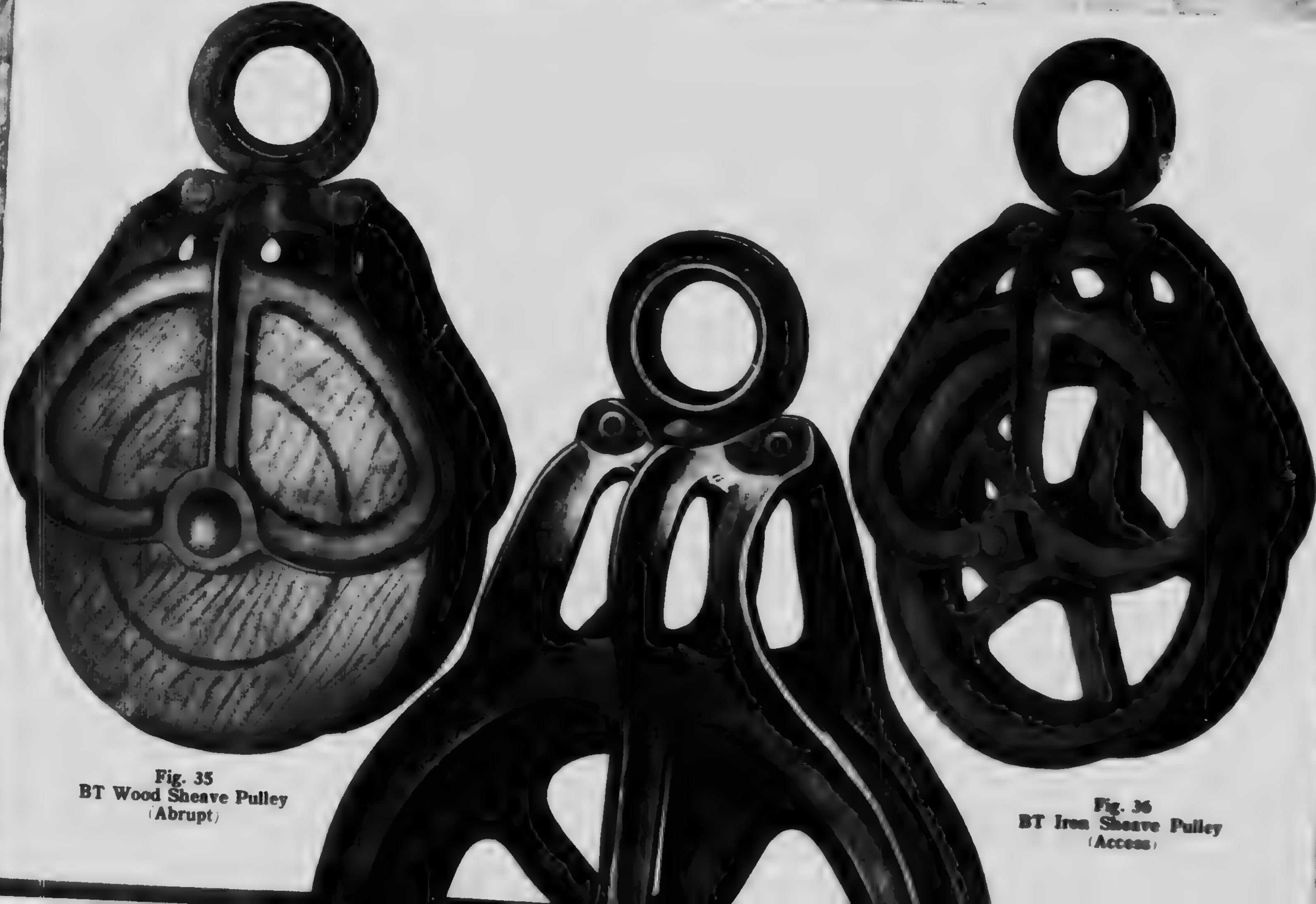


Fig. 35
BT Wood Sheave Pulley
(Abrupt)

Fig. 36
BT Iron Sheave Pulley
(Access)

(Access)

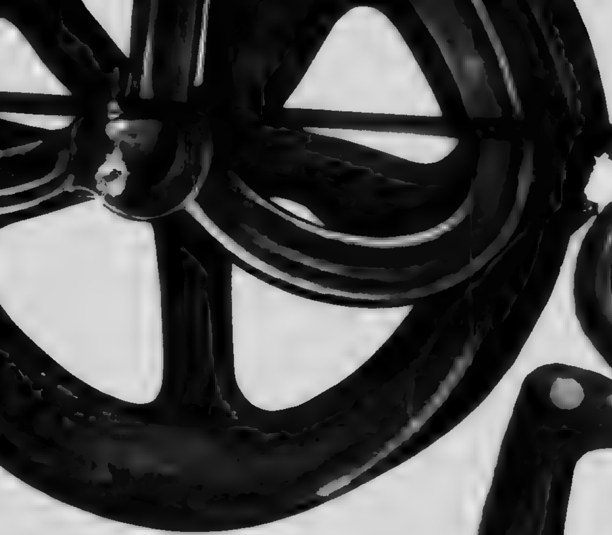


Fig. 220—BT 8-inch Malleable Frame Knot Passing Pulley
With Wood Sheave (Crude)
With Iron Sheave (Cub)

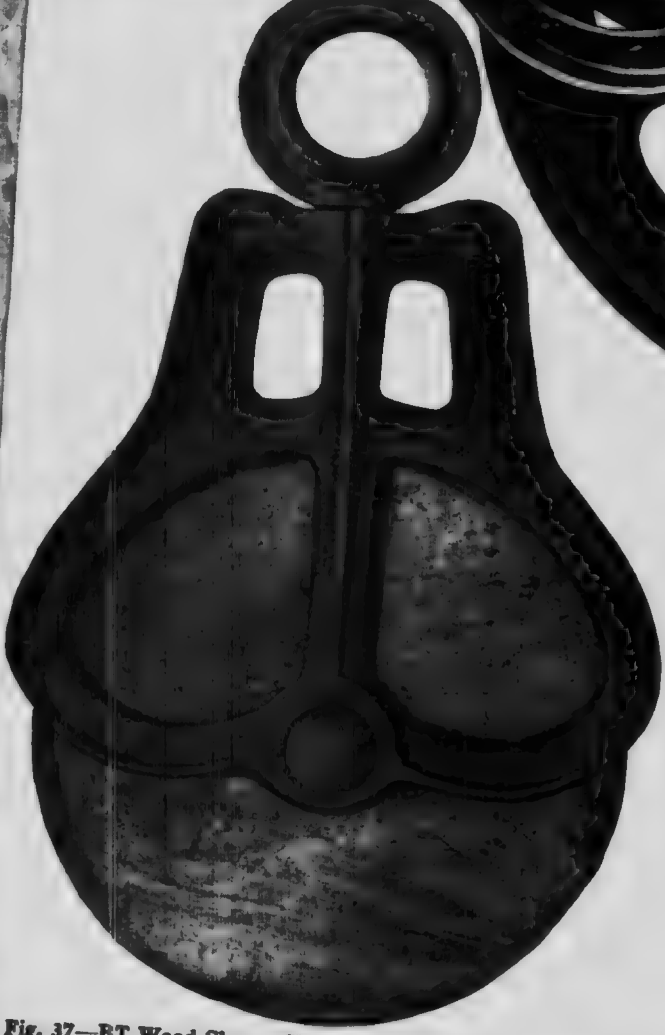


Fig. 37—BT Wood Sheave Knot Passing Pulley (Abstain)

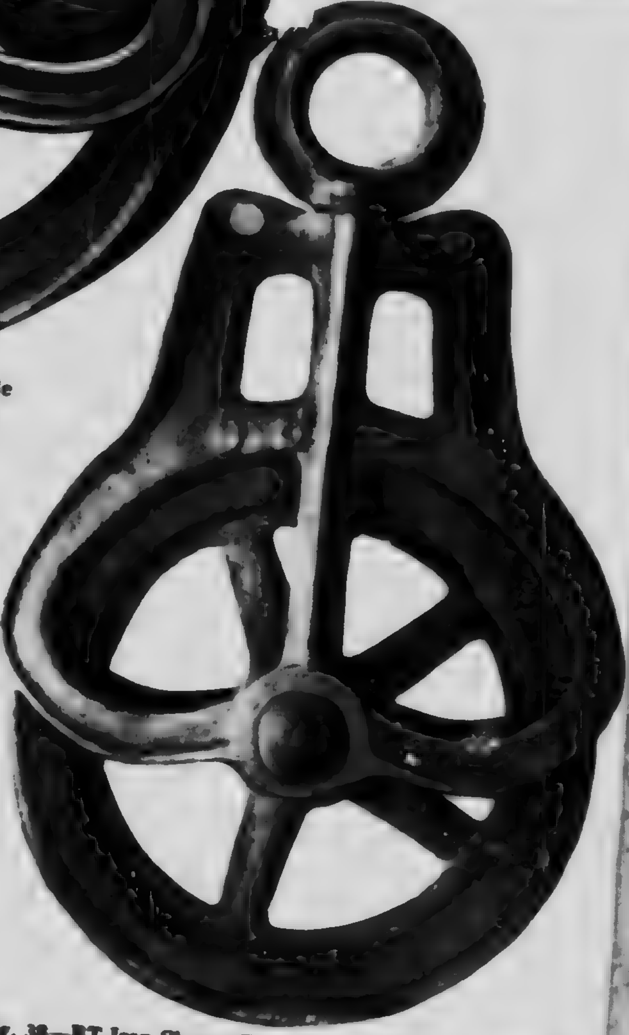


Fig. 38—BT Iron Sheave Knot Passing Pulley (Account)

BT Malleable Frame Pulleys

These pulleys are illustrated on pages 312-313. The frames are extra heavy, made of malleable iron and strongly ribbed. They protect the sheaves down past the centre axis, so that it is quite impossible for the rope to get in at the side of the pulley. No other pulleys give such protection. The eyes are heavily ribbed and have a tubular swivel which will never break.

Sheaves of the sheave wood pulleys are made of thoroughly seasoned hard maple, smoothly turned and boiled in oil. They run on 1-inch metallic bushings. The sheaves are let into recesses in the sides of the frame and held there by a bolt. At any time, the sheaves can be taken out handily.

Fig. 35 BT. Wood Sheave pulley, has 6-inch face and weighs 2½ pounds.

Fig. 36 BT Iron Sheave Pulley, has 6-inch face and weighs 3½ pounds.

Fig. 37, BT Knot-Passing Wood Sheave Pulley, has 6-inch face and weighs 3 pounds.

Fig. 38 BT Knot-Passing Iron Sheave Pulley, has 6-inch face and weighs 4 pounds.

The BT 8-inch Malleable Frame Knot-Passing Pulley is built like the 6-inch pulleys. It is easier on the draft rope and the draft is easier for the horses. We supply it with sheaves to suit either rope or cable and with the iron sheave or wood sheave. Weight with iron sheave is 8 pounds, with wood sheave, 7 pounds.

BT End Lift Pulley Bracket—Fig. 120

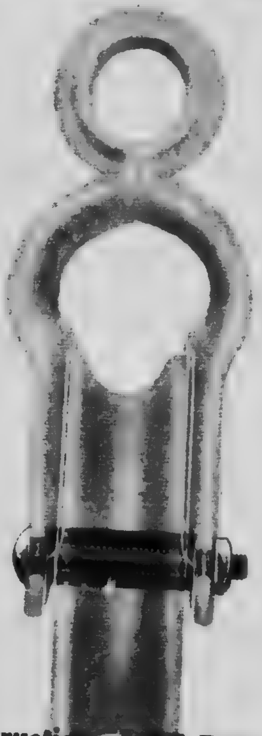
(Adduce)

The BT End Lift Pulley Bracket is used to hold the pulley when it is necessary to drop the rope from the gable at the end of the barn. It holds the pulley out so that the rope will not rub. It is much better than the old-style gable pulley, as the pulley for the rope below may be placed either directly below the gable pulley or any distance to either side. The pulley in the end lift bracket is free to swing to either side, so that it will align no matter where the pulley below is placed. It is always best in end lift outfits to drop the draught rope at the opposite end of the barn to the unloading one. One pulley and much rope is saved and one-third less power is required to raise the loads. This bracket weighs 3 pounds.

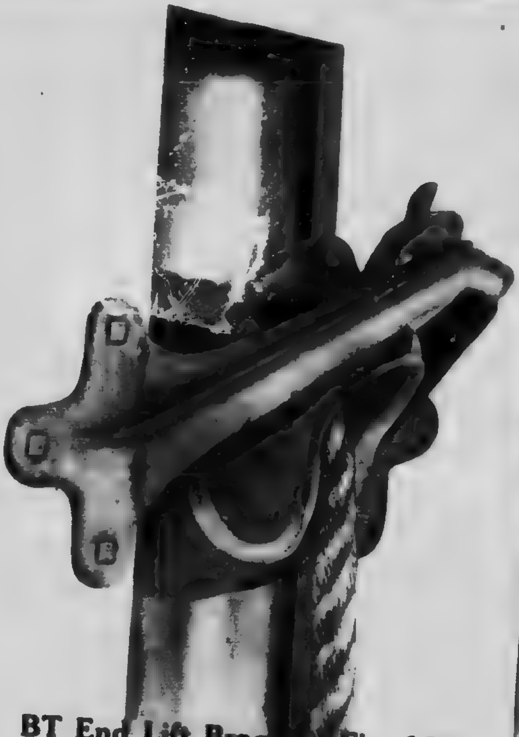
BT Malleable Pulley Hoister—Fig. 46

(Adieu)

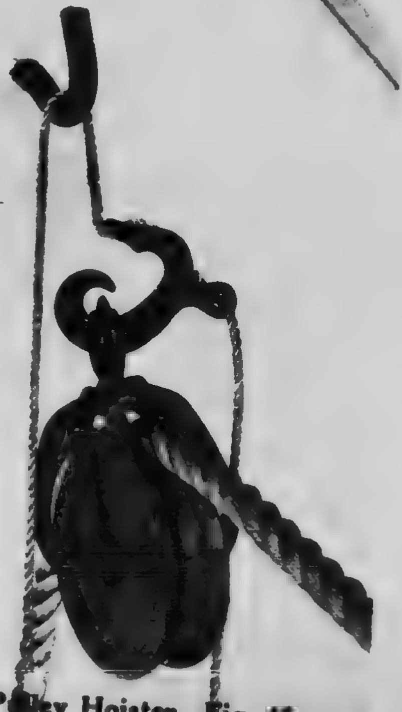
The BT Pulley Hoister saves all climbing in changing the hay carrier from working in one end of the barn to work in the other, or in bringing the pulley down for oiling. A small rope is attached to the hoister and placed over the draught rope at the end of the barn. The pulley is hooked on the lower part of the hoister casting, and by drawing on the small rope the upper part of the hoister is hooked over the draft hook. By drawing on the rope on the other side of the hoister, the pulley can be brought down again. One hoister is required for each end of the barn. One-quarter inch rope should be used with the pulley hoister.



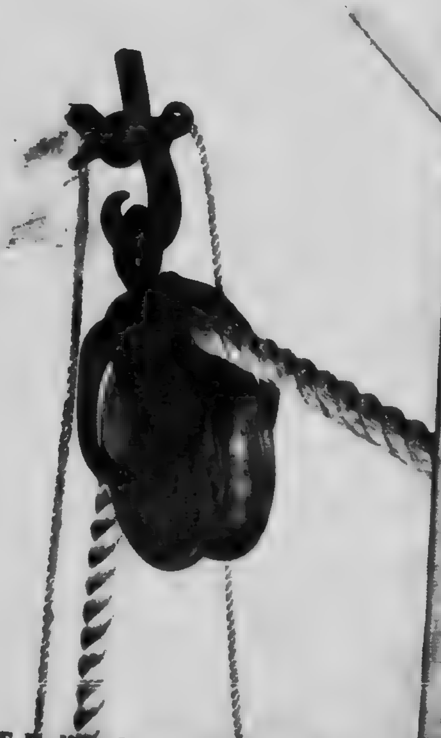
Construction of BT Pulley.



BT End Lift Bracket—Fig. 120



BT Pulley Hoister—Fig. 46.



BT Pulley Hoister—Fig. 46.

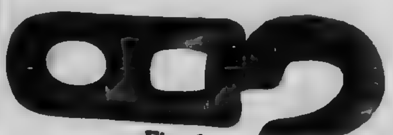


Fig. 118
BT Rope Hitch
(Alas)

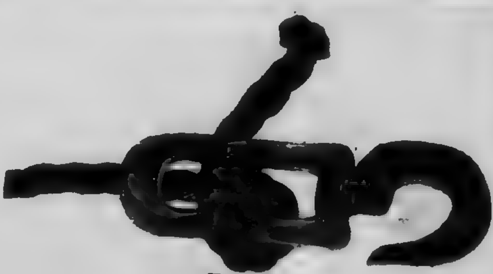


Fig. 118
Showing Rope Hitch with Rope

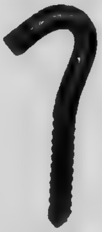


Fig. 49
BT ¾-inch Floor Hook
(Adorn)

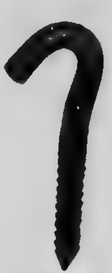


Fig. 62
BT ⅞-inch Floor Hook
(Adult)

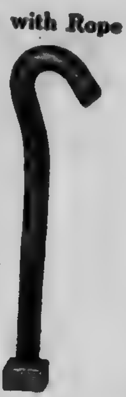
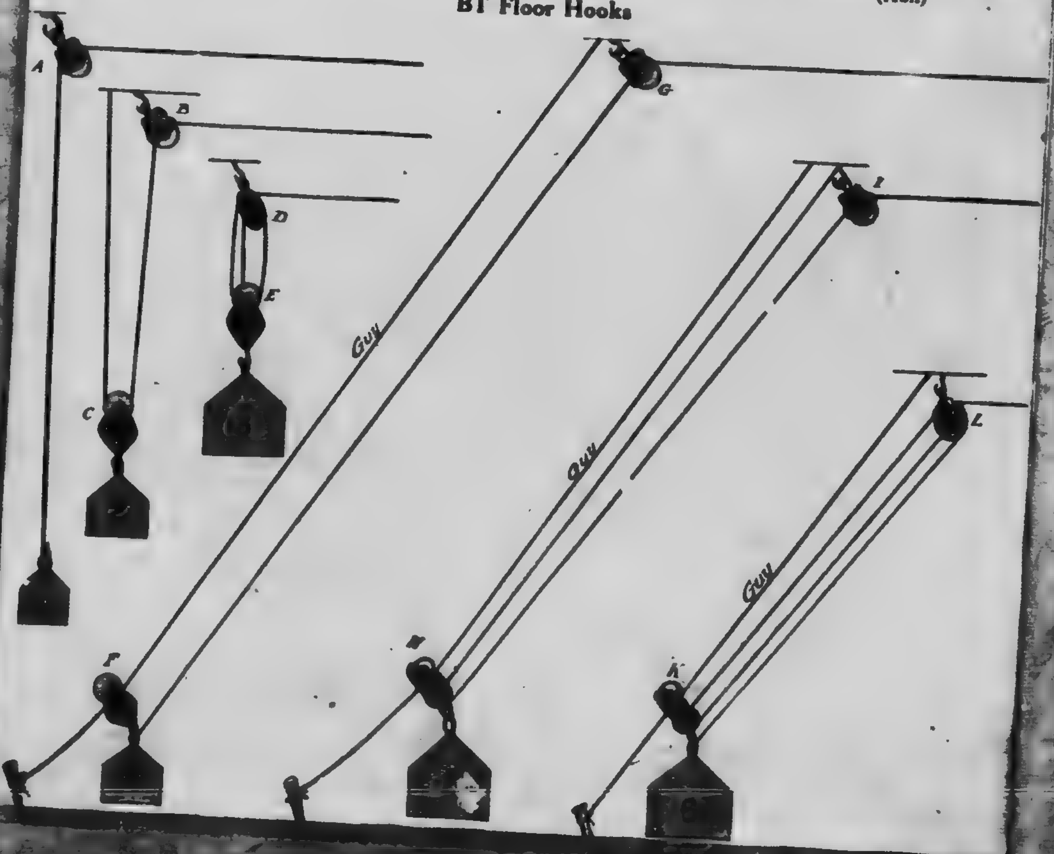


Fig. 588
BT Threaded Floor Hook
(Abil)

BT Floor Hooks



BT Swivel Rope Hitch—Fig. 118

(Alas)

The BT Swivel Rope Hitch is made of malleable iron. It has a swivel hook and a wire may be put through the hook to keep it from unhooking. It takes the twist out of the rope. The rope can instantly be lengthened or shortened. There are no hard knots to untie.

BT Pulley Hook—Figs. 62 and 49

(Fig. 62, Adult; Fig. 49, Adorn)

Fig. 62 illustrates the BT ⅞-inch Floor Hook and Fig. 49 the ¾-inch hook. They have deeply cut, sharp threads which hold firmly. BT Floor Hooks hold better than any others, especially in soft wood. The neck is purposely left long so that a good piece of the full material will go into the post, and the hook is much less liable to break off than when threaded right up to the bend.

BT Threaded Pulley Hook—Fig. 588

(Abil)

The BT Threaded Floor Hook is intended for use in a plank frame barn where the material is not over 2 inches in thickness and the hook cannot get much of a hold. The threaded floor hook goes right through the plank and is held by the nut on the other side.

Return Pulley and Fittings for Hay Carrier Outfit

A weight may be attached to the return rope to draw the carrier back, as illustrated on the opposite page. Where the track is longer than the height of the barn, it may be necessary to use a double rope, as shown in B.C.: in this case, twice the weight would be required to return the car as in the case of A.B. If the length of the barn is more than twice the height of the barn, a three rope system could be used as in D.E.: in this case, three times the return weight would have to be used.

It is often an advantage to use a guy rope on which the return weight can run up and down. This increases the distance that the weight travels, but it carries the weight to one side, out of the way of the load.

The use of a guy rope with the one rope, two rope and three rope systems is shown in F-G, H-I and K-L respectively. See bottom of opposite page.

Rope

We supply the different sizes of rope necessary for hay fork work. It is the very best long-fibre soft-laid Manilla. Only the best should be used for hay fork or sling work. We recommend ⅞-inch rope for draft rope, ⅜-inch rope for trip rope and ¼-inch rope for pulley hoister.

The BT Gable Track Support—Fig. 202

(Aghast)

When it is necessary to unload at the gable, the track should be extended out about five feet and strongly supported, since the greatest strain is always at the point where the load is lifted. Page 319 shows the BT Gable Support, which can be used with any style of track. The guy rod is made of ½-inch iron. The illustration also shows how the return rope is attached for sling carriers.

Installation of Hay Track Outfits

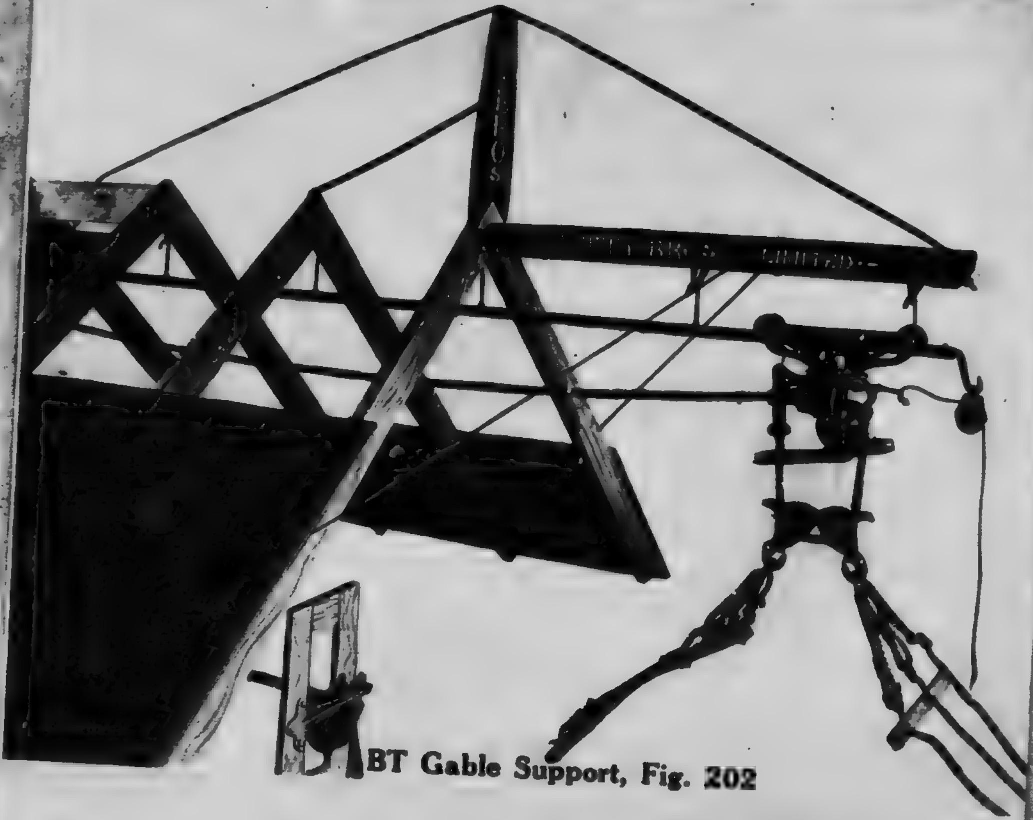
One rafter bracket (see pages 304-5) should be secured to each pair of rafters by 2-inch bracket nails. The nails should not be driven straight into the face of the rafters but on a slight angle.

The necessary hangers should then be used to hold the track to the rafter brackets. The track should be given a slight slope toward the stop block so that the car will return easily.

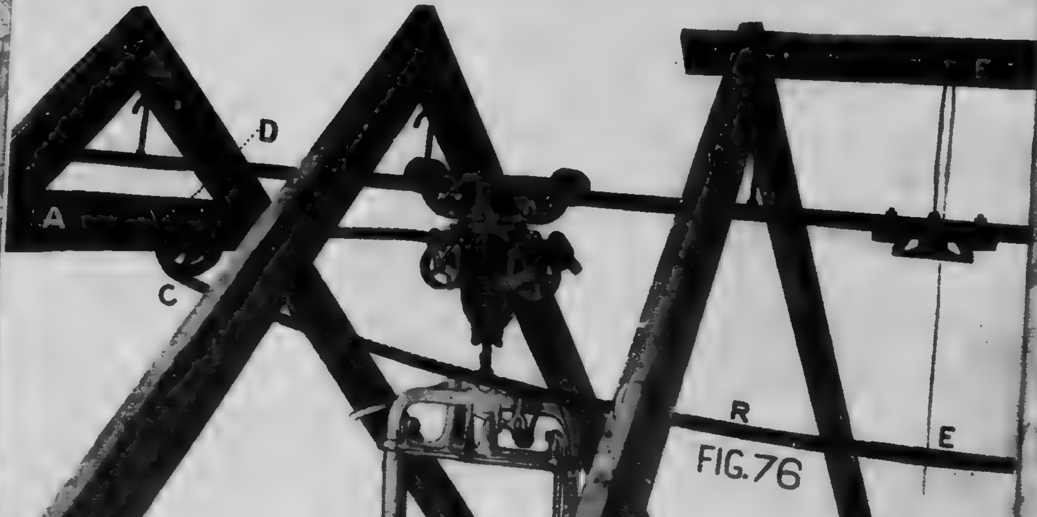
A heavy collar tie (A) placed behind the rafters, as in Fig. 76, should be used to carry the Draft Hook and should be loosely supported at its ends by touch inch boards (B.B.) well nailed at the correct height to these rafters and also to the ones at the end of the barn. A brace (C) should be nailed in between the rafters, as shown, to distribute the inward strain. Fig. 76 shows (at D) how a Hoister is used. Fig. 76 also shows how the Gate Cord is attached to a BT Raise and Lower Stop Block and held out of the way by staples or screw eyes (E.E).

The illustration at top of page 320 shows the correct method of installing a hay track outfit for an end-lift barn. The pulley for the draught rope is placed one rafter in from the end opposite the gable door, and the pulley for return rope is hooked on to the end of the gable support. The draught rope should run through the pulley at end of barn, over an end lift bracket, from there to a floor pulley below. Particulars of track and hangers for gable doors are given on pages 338 and 339.

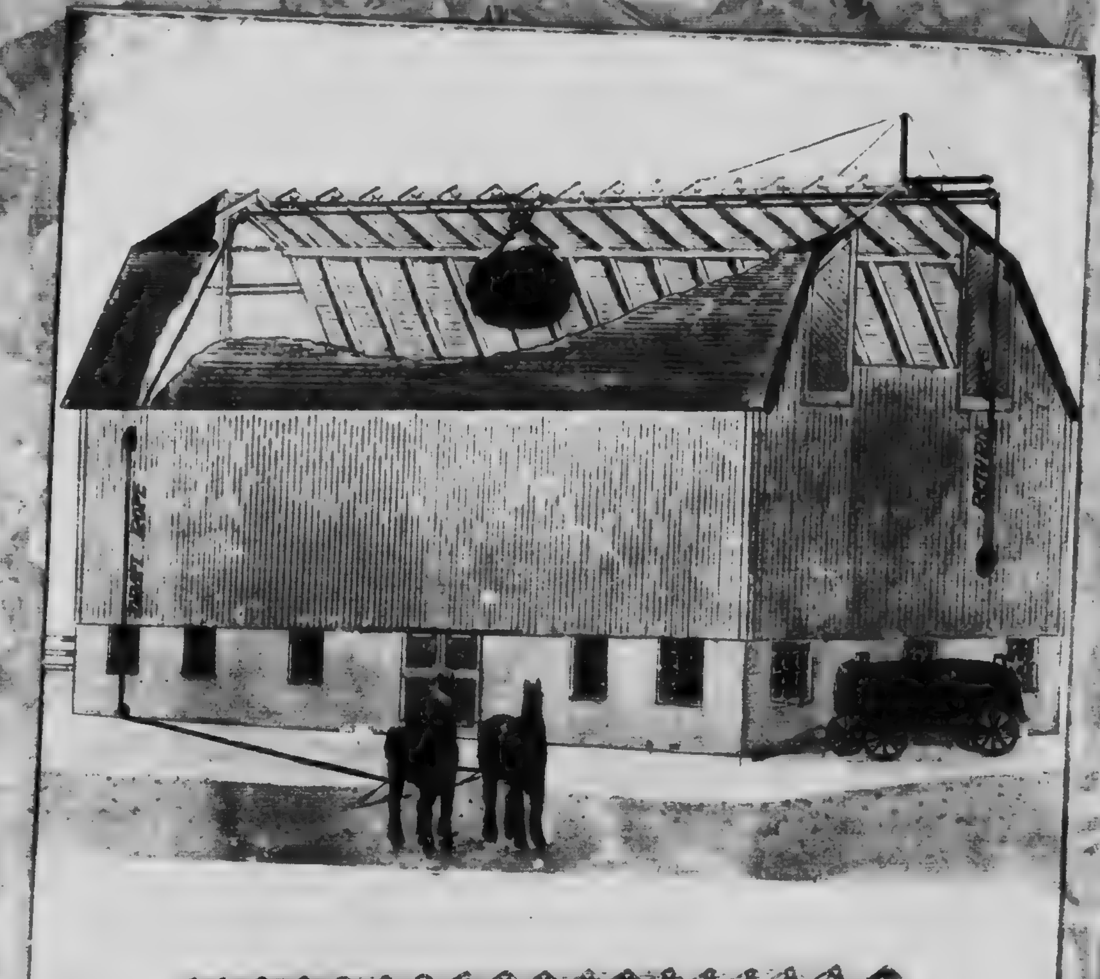
Illustration at bottom of page 320 shows the proper method of installing a hay track outfit in a barn with side drive. The end blocks should be placed one pair of rafters from each end and the track, of course, stopped at same. The pulleys for draught rope are placed on the end pair of rafters. The return rope pulley is suspended over track with a pulley bracket, on the opposite side of the driveway to the mow in which unloading is being done.



BT Gable Support, Fig. 202



Lining of the Rope in the Barn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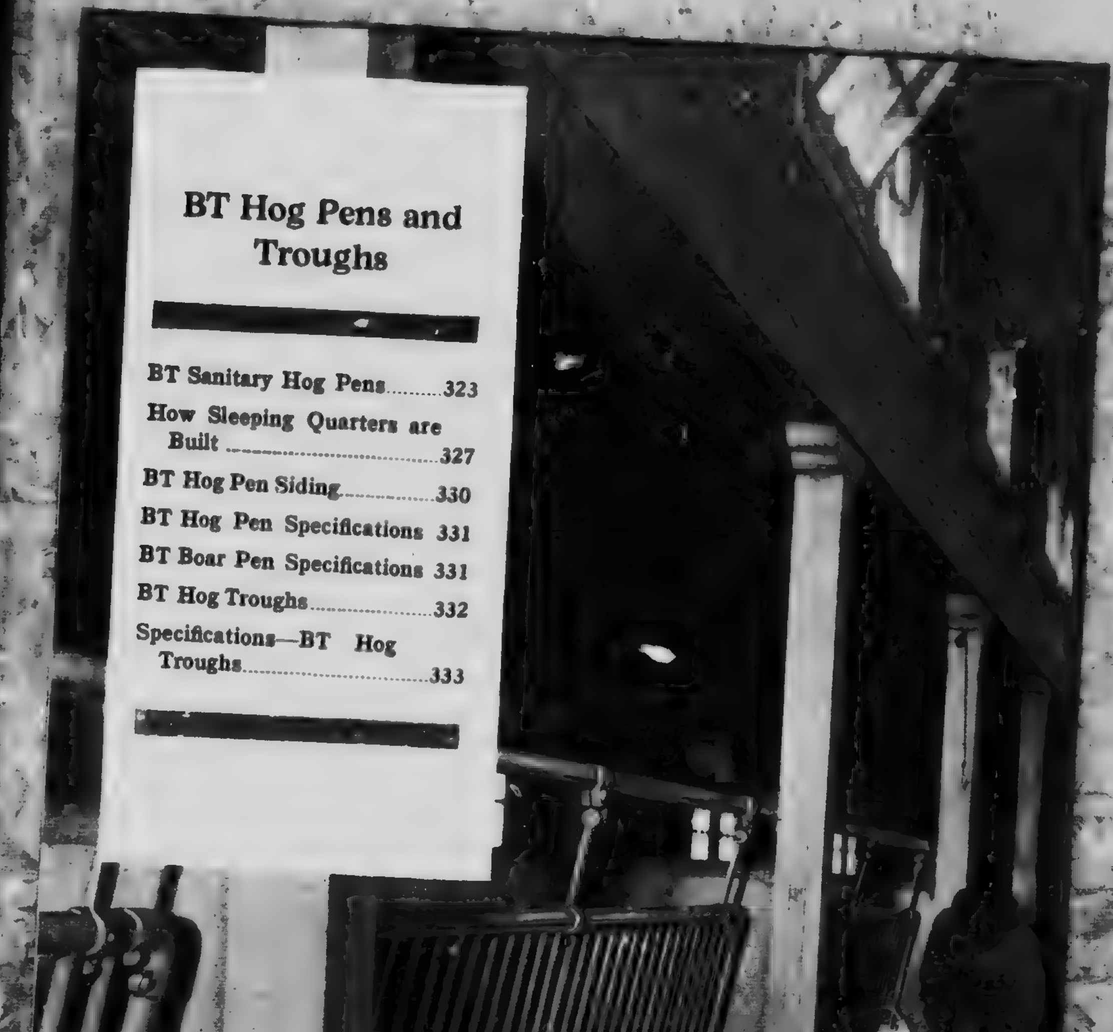

BT Hog Pens and Troughs

BT Sanitary Hog Pens..........323
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BT Hog Pens, Ba[illegible] Provincial Hospital, Whitby, Ont.

INDEX

arn of ... Collyer, Foster, Que.

Barn of W. F. ... Rockwood, Ont.

BT Sanitary Hog Pen

Hogs are grown for market on more farms than any other animal. One might expect to find them at least as well housed as any of the other animals on the farm, but this is very frequently not the case.

The little pig is one of the most delicate animals. The new born pig farrowed in January, February or March must be properly housed or the work of raising early pigs will certainly be unprofitable.

The Importance of Sanitary Quarters

There is no animal that needs more protection from cold; none more susceptible to disease from damp; none which will show more profit when conditions are right and surroundings healthy, than the hog.

Pigs, particularly when young, need fresh air and sunshine, combined with clean, dry quarters. They are quite as much, if not more, liable to fatal diseases than other kinds of stock. The heavy death rate in young pigs reduces the profits very greatly on many farms and the cause can nearly always be traced to dark, damp, unsanitary hog houses.

BT Hog Pens Save Disease

The biggest advantage of the BT Steel Hog Pens is that they permit of sanitary conditions. There is only one way in which hog cholera germs for example, can be done away with, and that is by maintaining a clean hog house. BT Pens permit plenty of sunlight and fresh air to enter. The pens can be much more easily and effectively fumigated than wood, and this is a big item to be taken into consideration, especially among those hog raisers who disinfect their barns almost daily.

Everlasting and Easy to Clean

BT Hog Pens are practically everlasting, the first cost being the only cost, whereas wooden pens rot out in time, necessitating the replacing of the entire outfit and in the end costing more than the steel.

These pens can be more easily and quickly cleaned than wood pens. They are always drier than the wooden pens because the sunlight has access to every square foot of floor space, and because the steel pen does not interfere with proper circulation of air.

Fixing Swinging Panel for Feeding in Dr. Caldwell's Barn, Port Arthur, Ont.

Feeding the hogs in barn of Dr. Caldwell, Port Arthur, Ont.

Easy to Erect

The pens are shipped assembled in panels. To erect the pens it is necessary only to set the corner and gate posts and pour in cement; when this cement is set in the pen will be solid. The great amount of labor saved in the erection by using BT assembled panels is a big item. Figure the labor required to build a wooden pen and you will find that it goes a long way towards paying for the steel pen.

Farrowing Rail

Too much stress cannot be placed upon the importance of the farrowing rail. When the sow lies down the farrowing rail will prevent her from crushing the little pigs against the walls; they will be shoved under this rail and protected in the space between the rail and the panel, and then can run around to the front side of the mother. The farrowing rail should be 10 inches above the floor and the same distance from the panel, and should extend around three sides of the pen. The BT Farrowing Rail may be lifted up out of the way after the little pigs are able to take care of themselves, and the farrowing rail is no longer needed. Lifting the farrowing rail transforms the pen into a feeding pen.

The Swinging Panels

The swing front panel will appeal to every man who has ever taken an active part in hog feeding. It does away with any need of straddling the fence, kicking the old sow in the ribs, at the same time trying to keep a dozen or so little pigs away from the trough while attempting to pour in the liquids. An ingenious device makes it possible to swing the panel by means of a lever at the front of the pen. This keeps all the hogs away from the trough until the feed is put in. It is then swung back again, where it locks and forms a solid front for the pen. The convenience of this feature is very clearly illustrated on page 324.

Sleeping Quarters

The sleeping quarters may be on the ground or overhead. The illustrations on pages 321, 326 and 328 show both types of construction. Sleeping quarters for brood sows should be built on the ground, but for pigs which are being fattened the overhead arrangement is the better. The latest hog houses have both. The pens on one side have sleeping places on the ground floor and those on the other side have sleeping quarters above.

Overhead sleeping quarters, barn of Dr. Caldwell,
Port Arthur, Ont.

Overhead sleeping quarters, barn of Dr. Caldwell,
Port Arthur, Ont.

How Sleeping Quarters are Built

Sleeping quarters on the ground floor are built as follows: Bolts are inserted in the floor while the cement is green. When the cement has hardened these are used to secure 2-inch x 4-inch scantling. On this scantling is nailed 2-inch tongued and grooved plank to form the floor. If, in the course of years, the woodwork rots it can be removed and new woodwork put in. Size is about 5 ft. x 7 ft.

The overhead construction is the driest and cleanest that can be devised and increases the capacity of the pen, since, when the sleeping place is overhead, there is more room below. The floor of the overhead room is placed on a level with the top rail of the pen below it. 2-inch plank is used to form the floor and it runs the full length of the pen. It rests on 2-inch tubing at each end; the planks are secured to the tubing by special clamps. A panel is used to close in the apartment and prevent pigs being crowded off. A 2 foot space is left at the end of this for a gangway. The overhead sleeping place is 4 feet wide and runs the length of the pen.

BT Steel Hog Pens are Fireproof

There is nothing inflammable in BT Steel Hog Pens. The risk of fire must always be borne in mind in designing or equipping any buildings. Cement floors and steel equipment provide no chance for a fire to start if a lantern should be upset. Insurance companies recognize the value of this by decreasing fire insurance rates when a barn or stable is steel-equipped.

Sanitary Steel Hog Pens Pay

Steel Hog Pens will add tremendously to the appearance of the stable. The open construction with the smooth, clean tubing, allowing sunlight and fresh air to flood the stable make the hog barn look a different place. It is impossible to build wood pens so that they will look nearly so well. But this is by no means all—Steel Hog Pens are a paying investment. The hog responds to cleanliness, sanitation, plenty of fresh air and lots of sun, like all other animals. More young pigs will come through their first few months safely and make profits later on. There will be less loss from diseases such as Hog Cholera and Tuberculosis.

Steel Equipment needs no carpenters to install it and takes up less room in the barn. Every day it will save hours of time in feeding and cleaning. It is practically everlasting and there is no cost for repairs. When the high cost of lumber is considered it is a poor investment to put in wood hog pens. BT Steel Hog Pens soon pay back their cost.

BT Sanitary Steel Hog [illegible]
Port [illegible]

og in Barn of Dr. Caldwell,
t A t, Ont.

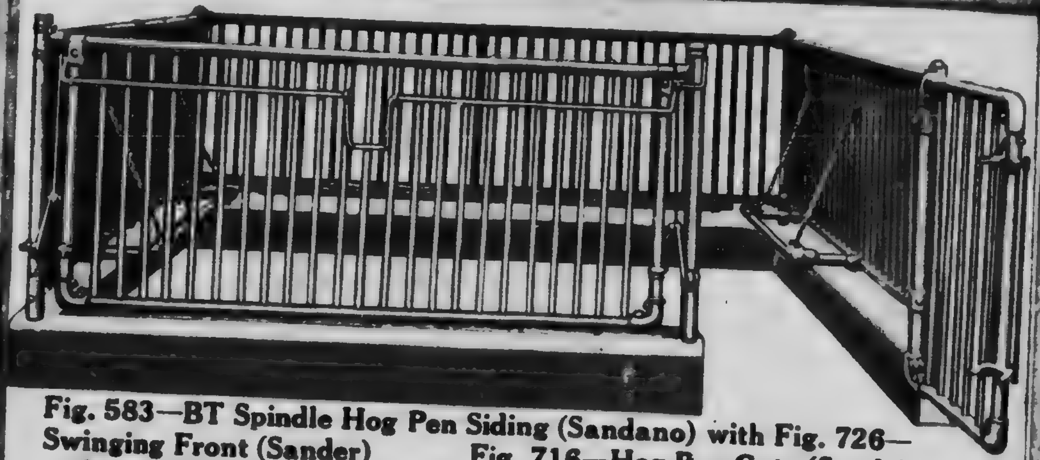
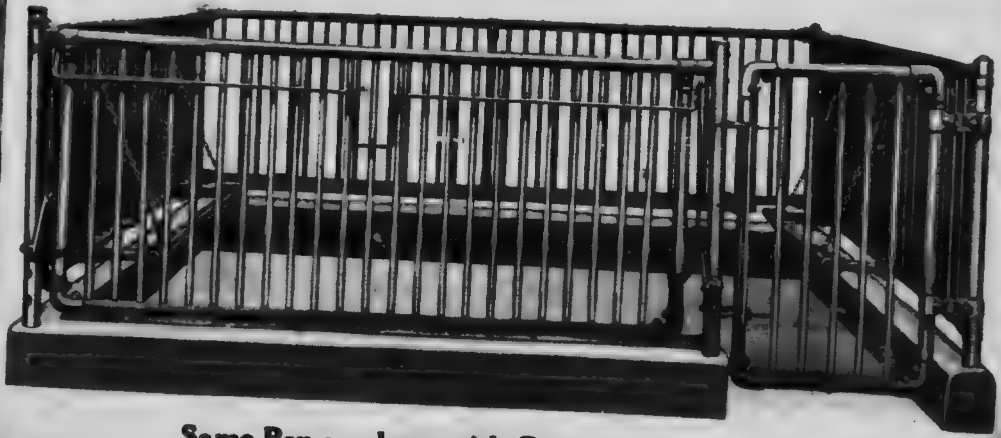


Fig. 583—BT Spindle Hog Pen Siding (Sandano) with Fig. 726—Swinging Front (Sander) Fig. 716—Hog Pen Gate (Sande) and Fig. 739—Farrowing Rail (Sanduck)



Same Pen as above with Gate Closed

Throw Back Swinging Front Before Feeding

BT Hog Pen Specifications

Corner Posts—2⅜-inch O.D., full weight steel tubing, 4 feet 1 in. long. They extend solidly below floor line, 2 inches. The tubing is fitted below the floor line with ½-inch anchor pins, secured in place, to give the post a thorough grip on the cement.

Intermediate Posts—1⅞-inch O.D. solid welded, full weight steel tubing, 2 ft. 9 inches long. Intermediate posts do not go through to the cement but are clamped to the panel horizontals. In panels over 8 feet long, a stub is sent to anchor in the cement and support centre of panel.

Gate Posts—2⅜-inch O.D. tubing, same quality as corner posts. They are 4 ft. 7 ins. long and extend solidly below the floor level 8 inches. Anchored to the cement by ½ rods and 1 1-16-inch spindle bushings.

Panel Horizontals—1⅞ O.D. solid welded, full weight steel tubing.

Panel Uprights—Spindles are set on 3½-inch centres. They are 1 1/16-inch O.D. steel tubing and are 2 feet 8 inches long.

Gates—Gate frame is made of 1⅞ O.D. solid welded, full weight steel tubing. Corner clamps are Fig. 415, illustrated on page 112. Spindles in gate are set on 3-inch centres and are made of 1 1/16 inch steel tubing, 3 ft. 5 ins. long. Gate lock is the same as illustrated and described on pages 166 and 167. Gate opening, 2 ft. 6 ins. Gate only 2 feet wide.

Clamps—The same neat, dustproof, sanitary clamps are used as are used with BT calf pens, cow pens, and bull pens. See pages 112 and 167.

Panel for Sleeping Place—Same panel is used as for pen, same panel horizontals and panel uprights. Clamps are provided to attach plank to tubing which supports floor of sleeping place. Corner posts are made of 1⅞ inch O.D. tubing and run from floor to ceiling.

Farrowing Rail—1⅞-inch O.D. solid welded, full weight steel tubing. This is attached to a 10-inch length of tubing of same specification hinged to the panel horizontal at both ends of the panel with BT Clamp, Fig. 404, page 112. When lowered the farrowing rail is held in position by a chain at both ends which is attached to the rail and to the panel uprights by special clamps. The hinge clamps, Fig. 404, are tight enough to hold the farrowing rail in position when raised. There should be a farrowing rail on 3 sides of the pen.

Swinging Panel—Siding has same specification as panel for other three sides of the pen. It is swung in a clamp at both ends. It is swung back by lifting a lever as shown on page 324 and automatically locks in position to allow the feed to be emptied into the trough. Spindles in swinging panel are 2 ft. 10 ins. high. The uprights forming the frame are made of 1⅞ O.D. tubing and are 2 ft. 11 ins. high.

Sizes—To finish 8 hogs a pen 10 feet wide and 12 or 14 feet deep is required. For 10 hogs 12 x 12 ft. or 12 x 14 ft. should be the dimensions.

Finish—All tubing, clamps and parts are galvanized and finished in grey enamel paint.

Trough—Use Fig. 704 Stall Lining, page 332.

BT Boar Pen

Corner Posts, Intermediate Posts, Gate Posts, Panel Horizontals, Panel Uprights, Gate and Clamps are the same as for BT Bull Pen, page 171, No. 4 Siding, except that spindle panel uprights are set on 4½-inch centres. Panel for sleeping place and swinging panel are the same as for BT Hog Pens, described above. BT Boar Pens are Galvanized

Note—When a pig pen comes next to a cow pen, pig pen siding should be used to form the partition between the two pens. In pig pen siding, the spindles are set on 3½-inch centres and the space is so small that little pigs cannot get through. If cow pen siding is used, pigs can get into the cow pen and cause trouble. The bottom of the lower panel horizontal should be two inches above the top of the curb. The cement curb should be 8 inches high and 6 inches wide. The top of the upper panel horizontal should be 3 ft. 11 ins. above floor level for hog pens, and 4 ft. 11 ins. for Boar Pens.

BT Sanitary Steel Hog Troughs

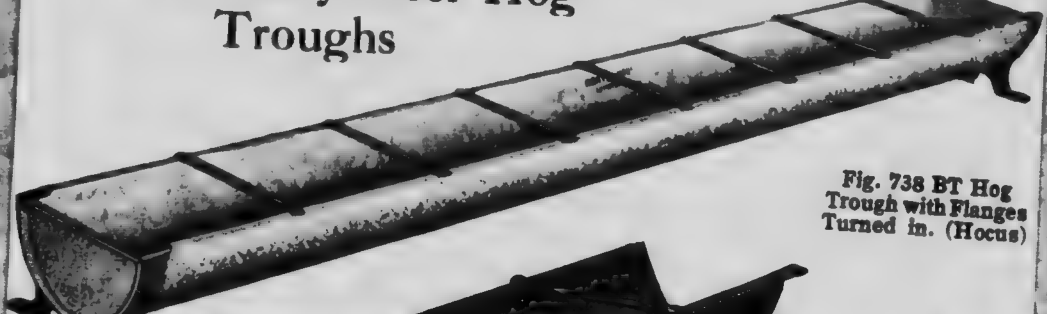


Fig. 738 BT Hog Trough with Flanges Turned in. (Hocus)

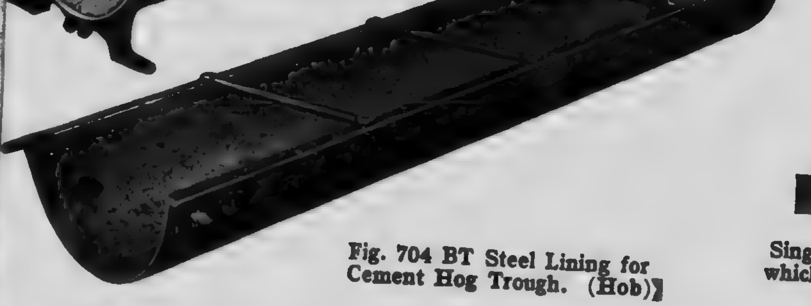
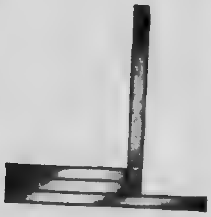


Fig. 704 BT Steel Lining for Cement Hog Trough. (Hob)



Single Lock Seam by which end and bottom are joined

BT Steel Hog Troughs are sanitary. They will not absorb fermented foods and become objectionable. There are no corners or cracks in which disease germs can collect and breed. In this way they help materially in checking the spread of any disease, such as Hog Cholera. Food cannot collect in corners and go sour. The steel is durable. Wood troughs are soon eaten out. A brood sow will frequently almost destroy one of them the first time she is fed from it. She cannot hurt the steel. A steel trough is even more durable than concrete. The concrete soon wears rough and it does not take long for moisture and acids to spoil the surface entirely and make it unfit for use.

BT Steel Hog Troughs can easily be moved from place to place. This is an advantage the concrete trough does not possess. It is a specially valuable feature in the summer months, as hogs can often be produced more cheaply in pasture lots with movable quarters than in any other way. The cost of a BT Steel Hog Trough is very small and it is an investment that will give good service and save trouble for years.

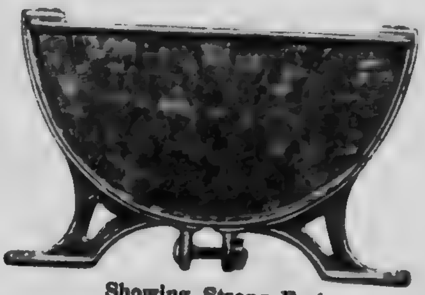
The Construction of BT Hog Troughs

Complete specifications of BT Troughs are given on the next page.

BT Hog Troughs are galvanized throughout. There is nothing to rust. The joint by which the sides are joined to the ends is designed so that the harder the pressure on the inside of the trough, the tighter the joint becomes. No spot welding is used in BT Hog Troughs.

The Cross Bars are all riveted to the sides of the trough.

The feet which support the trough at each end are made of malleable iron and cannot break.



Showing Strong End

Showing Cross Bar

The body of the trough is 20 gauge galvanized sheet steel and is made from a solid sheet unless over 10 feet in length. The joints at the ends are soldered so that there are no cracks in which feed can accumulate.

Specifications of BT Hog Troughs

Flanges Turned In—Fig. 738

(Code word, 3 feet to 5 feet: Hock; 6 feet to 10 feet, Hocus.)

Specifications

The End—This is strong, sanitary and non-leaking. The piece of sheet steel which forms the bottom and sides is bent in on a powerful brake to form a deep groove. The edge of the steel end piece is turned out to make a broad flange. The flange fits securely in the groove and the connection is soldered to make it still more sanitary. The greater the pressure put on it by the animal, the tighter it becomes. There are no holes or cracks in which the feed might accumulate and sour.

The Foot—The trough rests at each end on a broad foot, made of malleable iron, holes being bored in it on each side so the trough can be secured to the floor. The foot is riveted to the sides of the trough.

Cross Pieces and Flanges—½-inch steel cross pieces are riveted to the flanges along the sides at intervals of a foot. These prevent the hogs from crowding when feeding. They also save feed by preventing the animals tossing it out. The steel bars take up very little of the feeding space of the trough. The steel cross pieces are riveted with ⅜-inch rivets. No spot welding is used in construction of this trough. Flange on each side is an inch wide and consists of a double thickness of the steel sheet. It thus greatly strengthens the trough. Flanges of Fig. 738 trough turn in as shown above.

Finish—All parts are galvanized.

Materials—20-gauge galvanized iron.

Sizes—Even foot lengths from one foot upwards. Troughs less than 3 feet in length are charged for at the price of the 3-foot length. Troughs may be had in special lengths, as 3 feet 6 inches, but will be charged for on the same basis as the next even length. We do not recommend troughs over 10 feet in length, as they must be built in two sections and spliced at the centre. The body of 10-foot troughs and smaller sizes is always made from the solid sheet. All troughs are 12 inches wide and 5½ inches deep over all. Inside dimensions are 10 inches and 5 inches.

Steel Bottom for Cement Hog Troughs—Fig. 704

(Hob)

This is used to line cement troughs and should always be used to line the cement mangers used with BT Hog Pens, described on previous pages.

It is constructed the same as Fig. 564, except that it has no ends. It is 12 inches wide and 5½ inches deep over all. Half inch rods are riveted to the sides every foot.

Doors are easily blown down and broken with old fashioned hinge.

Doors open easy when BT Barn Door Track is used, [illegible] never broken by the wind.

BT Barn Door Track

It is practically impossible to get a swinging door on a barn that will be really satisfactory for any length of time.

Locks and hinges come to grief or weaken, and when the first high wind comes along it bangs the door backwards and forwards, damaging the door, and blowing material around inside the building.

The heavier a door may be the harder it is to keep it securely locked and the more damage is done if it gets unlocked. If swing doors are used a space must always be kept clear outside the door or it will not open. This is often very inconvenient. If sliding doors and Barn Door Track are used these difficulties are overcome. The doors are always close to the building and cannot blow open. There are no hinges to spring and no latch to weaken and get out of order. Doors are not damaged and do not need repairing. The heaviest doors can be handled with ease.

The Track

There is no danger of birds, snow or ice blocking the BT Tube Track. As the illustration on page 336 shows, the door hangers run in an absolutely protected channel. There is no risk of the track getting clogged and making the door hard to open and close. The door is centre hung so that the wheels of the hangers always run squarely in the channels. This is a great advantage and insures smooth running. The hanger is suspended from the exact centre of the track so that the wheels cannot get out of alignment. Owing to this construction, the door runs as close to the wall as it is possible for it to be.

The Hangers

The joint on BT Barn Door Hangers is flexible, allowing the door to swing outward without danger of breaking or binding on the track.

This is better than hinging the track. If this is done snow and ice can accumulate behind the track and prevent it from coming close to the barn. There is no danger of a board working loose, forcing the track out and causing it to warp. Hinged tracks have to be protected with a shield, which is not necessary in this case owing to the design of the hangers.

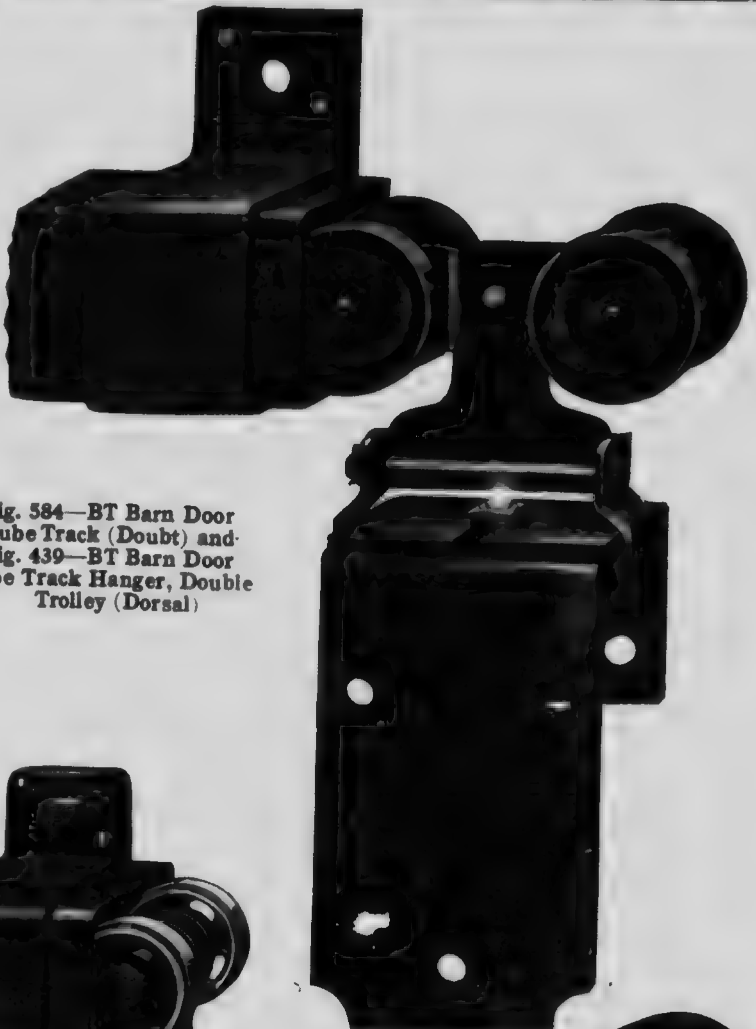


Fig. 584—BT Barn Door
Tube Track (Doubt) and
Fig. 439—BT Barn Door
Tube Track Hanger, Double
Trolley (Dorsal)

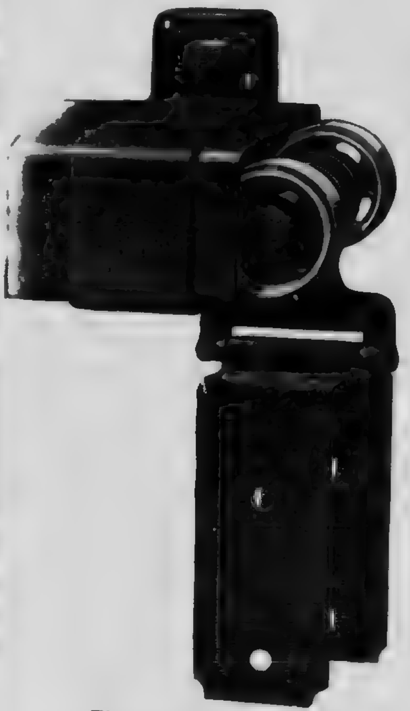


Fig. 438—BT Barn Door
Tube Track Hanger Single
Trolley (Dower)

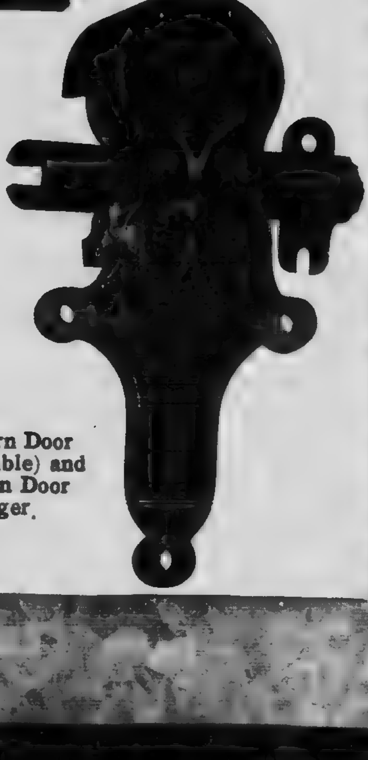


Fig. 585—BT Barn Door
Round Track (Double) and
Fig. 437—BT Barn Door
Rovnd Track Hanger.
(Dowdy)

BT Barn Door Tube Track—Fig. 584

(**Doubt**)

The rollers run inside this BT Barn Door Tube Track and are thus perfectly protected from birds, snow or ice. The channels cannot become clogged. Anyone who has used the old style of track which becomes slippery and dirty, constantly causing the wheels to jam, will easily realize what a great advantage this is. The door is centre hung.

The track is made of 16 gauge high carbon steel, finished in black japan, supplied in 6-foot, 8-foot and 10-foot lengths and weighs 1 2-3 pounds per foot. The high carbon steel has three times the wearing quality of soft steel track like that used in many cases.

Brackets for the track must be specified in ordering and an extra bracket for the end. They should be spaced not to exceed 20-inch centres. With each pair of hangers are packed two steel clips which fit into the regular centre sockets, converting them into end brackets. Brackets weigh ¾-pound each. They are packed one dozen in a box complete with the necessary lag screws.

BT Barn Door Tube Track Hanger—Double Trolley—Fig. 439

(**Dorsal**)

The BT Barn Door Hanger, Fig. 439, has a flexible joint and hinged apron, allowing the door to swing outward without danger of breaking or binding on the track.

The door is close hung with our Fig. 439 hanger, the distance between top of door and bottom of track being only 2 inches. By simply loosening a nut, the hanger can be adjusted to suit any thickness of door. It is adjustable from 1½ to 2½ inches.

Each hanger has four grey iron tracker wheels 2½ inches in diameter, having a face turned in lathe to insure smooth, easy running; wheels are also fitted with steel roller bearings.

Made of black, enamelled steel. Apron is 6 inches long and 3½ inches wide. It is supplied with bolts for going through the door. Weight, 7 pounds per pair and can be used with any door not exceeding 400 pounds in weight.

BT Barn Door Tube Track Hanger, Single Trolley—Fig. 438

(**Dower**)

The BT Barn Door Hanger, Fig. 438 is very like our Fig. 439 Hanger, but has two wheels instead of four and is not adjustable in width. It is made to fit a door 1¾-inches in thickness. The hanger is close hung, distance between top of door and bottom of track being only 1⅜-inches. Made of black enamelled steel. Apron is 4 inches long and 2 inches wide. It is supplied with bolts for going through the door. Weight, 3 pounds per pair. Can be used with any door not exceeding 100 pounds in weight.

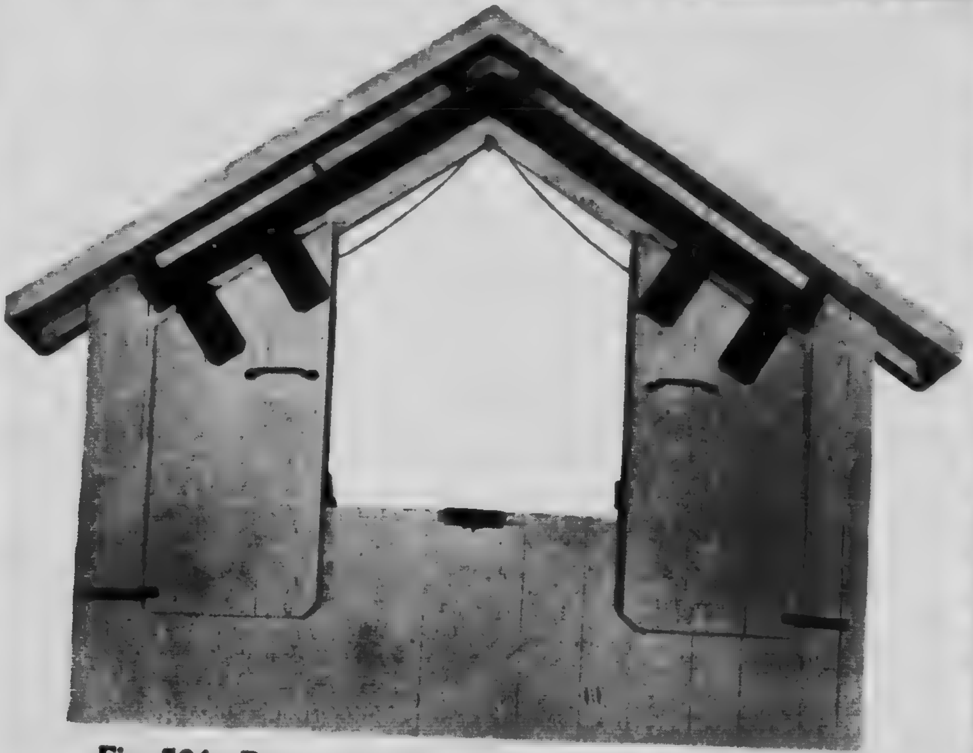


Fig. 584—Barn Door Track (Doubt) on Gable Doors

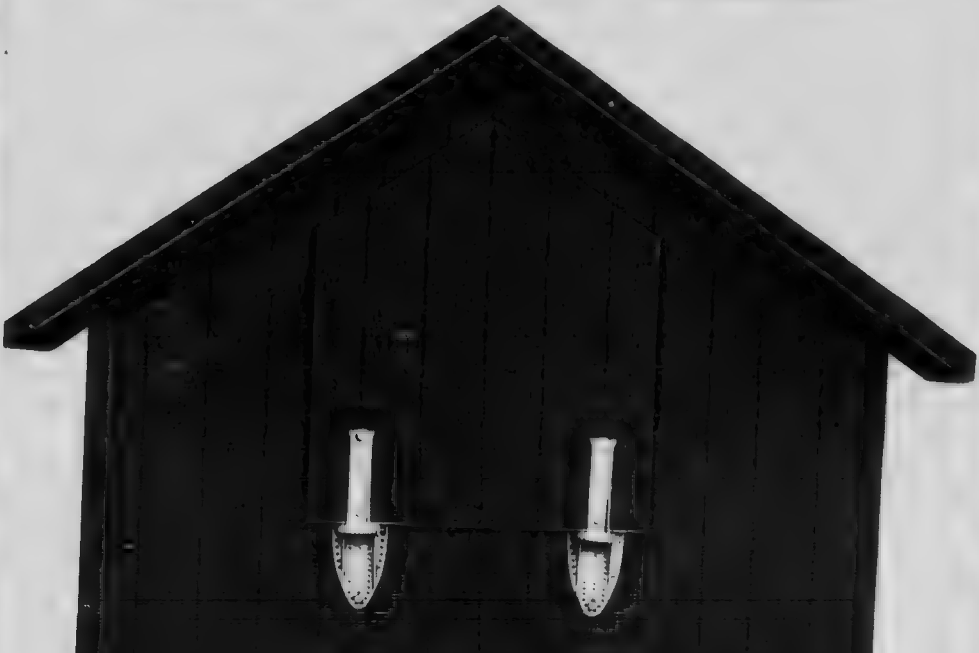


Fig. 502—Hinge For Gable Doors (Durk)

BT Barn Door Round Track Hanger—Fig. 437
(Dowdy)

Barn Door Round Track—Fig. 585
(Double)

We recommend BT Round Track, Fig. 585, for indoor use, where the doors are not extra heavy.

The hangers have ribbed backs with extra strength, strong wheels with roller bearings and lower guide rollers to prevent them binding on the track or derailing. They are made of black-enamelled, malleable iron and shipped in pairs with end stops and bolts to go through the door, the parcel weighing 6¾ pounds.

The track is made of high carbon steel and japanned. It is supplied in 6, 8 and 10-foot lengths. Brackets are riveted in place on the track. The track weighs 1 pound per foot.

Barn Door Track for Gable Doors

It is often necessary to take the hay or grain through a gable door in the end of the barn. The door is divided in the centre and each half runs on an inclined piece of track. For a 12-foot door the following material is required.

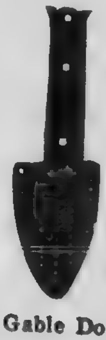
26 feet of BT Tube Track (Fig. 584 is required), 2 pairs of Gable Door Hangers (Specify Fig. 696), 10 Brackets, (Specify Fig. 693), four 4-inch pulleys and 52 feet of sash cord or light cable in two lengths of 26 feet each.

Counter-weights are hung by means of the pulleys. These weights should be about the same weight as each half of the door.

BT Hinges for Gable Doors—Fig. 502
(Durk)

Fig. 502 illustrates another method of hanging a gable door. The hinges shown in Fig. 502 are placed at the bottom of the door on the outside of the barn and are off-set to permit the door to go outside the siding.

To close the door, two cords or chains are placed on the inside, one on each side of the door, meeting in a ring. These cords are just long enough to allow the bail pulley to hold the ring when locked in the hay car. The bail pulley is hooked to the ring when the door is open and the hay carrier will then pull the door tightly shut. When shut, the door can be prevented from banging by two strong hooks. The door may be allowed to drop freely when it is desired to open it, as the air will cushion the fall and prevent the door from banging with too much force against the end of the barn.



BT Hinge for Gable Door. Fig. 502.

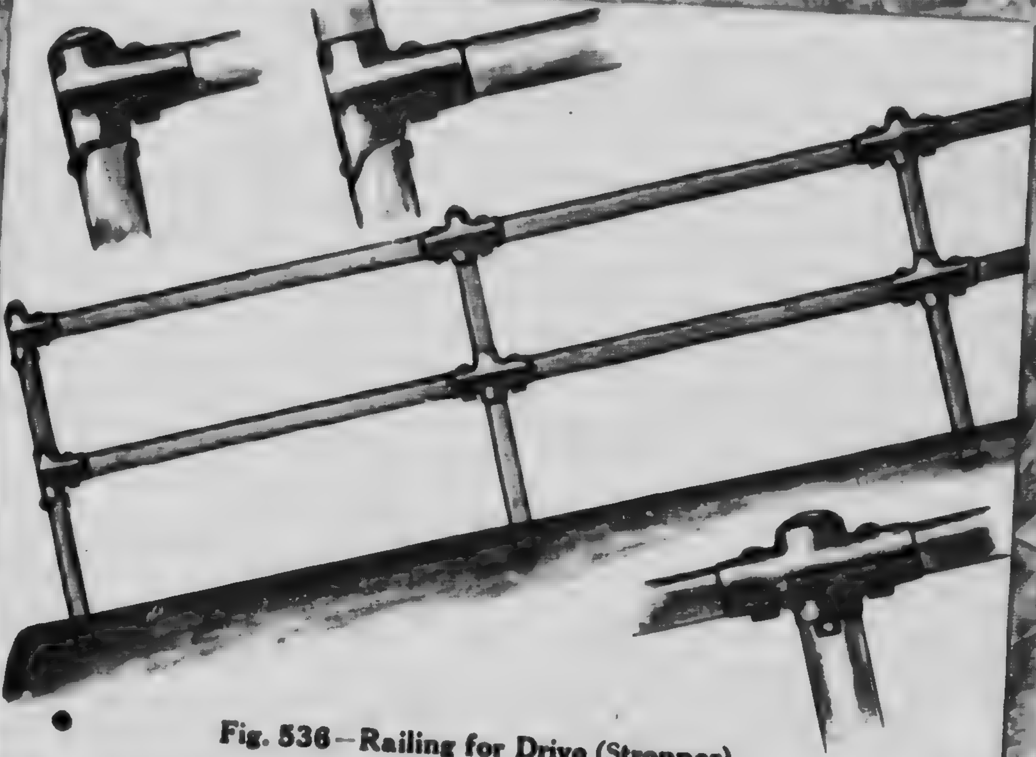


Fig. 536—Railing for Drive (Stropper)

[illegible] (Sandow)

[illegible] Magnet Cleaner (Ca[illegible]

Railing for Driveway—Fig. 536

(Stropper)

Steel railing for driveway adds greatly to the appearance of the barn. It makes a useful and ornamental fence for lawns, approaches to bridges, etc.

Upright posts are made of 2½-inch O.D. galvanized tubing and finished in paint. They are placed on 8-foot centres. Posts are 3 feet long and are embedded a distance of 6 inches in the concrete. They are anchored firmly with ½-inch steel pins which are riveted solidly in them.

There are two rails, one along the top, 2 feet 6 inches above the cement and one 15 inches below, centre to centre. These are constructed of 1⅞-inch solid welded tubing, galvanized and painted.

Heavy malleable iron clamps are used to attach the posts to the rails. These are dirt proof. The clamp for top of post and rail carries a neat cap. Clamps are galvanized.

Reinforcing for Concrete Drives

A concrete drive or bridge requires reinforcing. We supply 6-inch steel I-beams for the purpose. These are embedded in 8 inches of concrete. They are placed 18 inches apart for a 14-foot drive and 24 inches for a 10-foot or a 12-foot drive. Below the drive is a very convenient place for a cistern or a root cellar.

BT Barn Scraper—Fig. 586

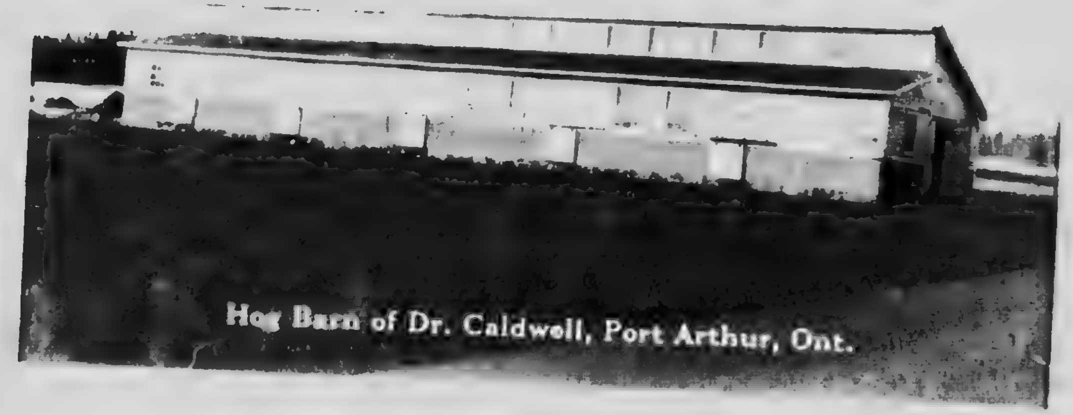
(Sandew)

The BT Barn Scraper is handy for cleaning passage ways and yards. It is 24 inches wide and is made of shovel steel tempered especially for this work. The best annealed malleable castings of heavy design with large bolts are used to connect the scraper to the handle. Second growth ash, thoroughly seasoned, is used for the handles.

BT Manger Scraper—Fig. 587

(Sandex)

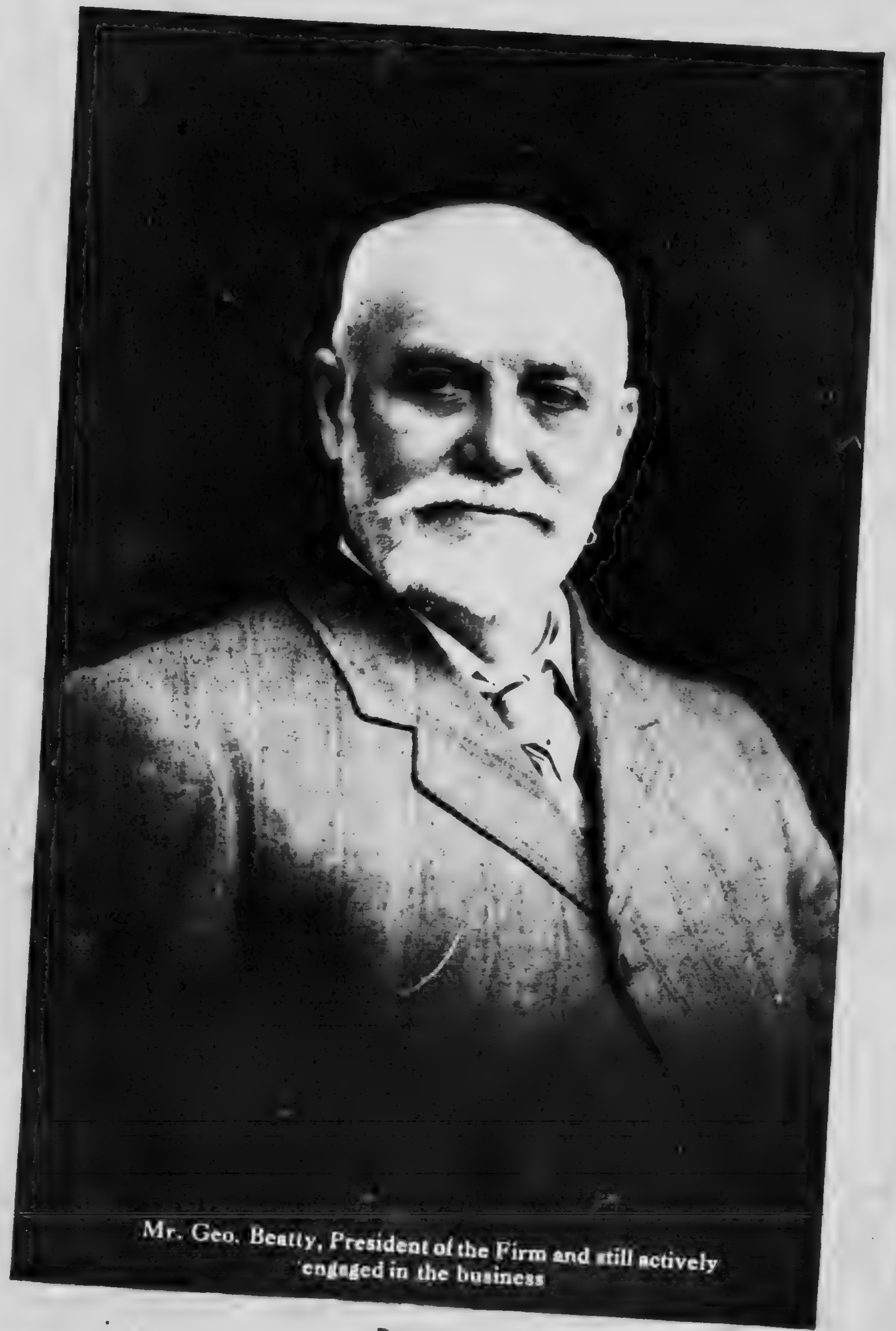
The BT Manger Scraper is made to fit the manger trough. Birch is used in it, with heavy malleable castings and a special roll to run on the curb.



Hog Barn of Dr. Caldwell, Port Arthur, Ont.

Hog Barns, A. B. Gilles, [illegible] Bay

Hog Barn, Ontario Provincial Hospital, London, Ont.



Mr. Geo. Beatty, President of the Firm and still actively engaged in the business

Head Office and Factory, Fergus, Ont.

Hill Street Factory, Fergus, Ont.

Grand River Factory, Fergus, Ont.

York St. Factory, London, Ont.

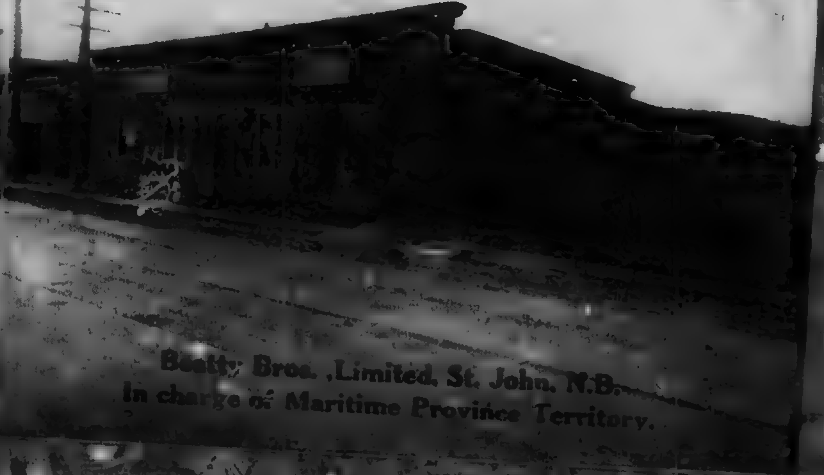
hurst St. Plant, London, Ont.

Chelsea Green Moulding Shop, London, Ont.

[illegible] Bros. Limited, Winnipeg, Man.
In charge of Manitoba and Saskatchewan Territory.

Beatty Bros., Limited, Edmonton, Alta.,
In charge of
Alberta and British Columbia Territory.

[illegible] Limited, Montreal, Que.
[illegible] Quebec Territory.



Beatty Bros. ,Limited, St. John, N.B.
In charge of Maritime Province Territory.

A Personal Message

This book has been given almost entirely to the building of the barn and the fixing up of the stables.

We have demonstrated BT Equipment as well as we can in print. We have shown photos of the goods, shown how they are used in many barns and we have given their points of advantage.

Something more must be said before our proposition has been fully presented. It is your due to know just how reliable is the firm which stands behind the goods and the promises. The building or remodelling of a barn represents a large investment. So it is important to find how substantial is any firm which offers to supply the equipment for it.

A few Words about the BT Business

The firm of Beatty Bros. was founded in 1873 by George and Matthew Beatty. In 1886 Matthew Beatty died and George Beatty continued the business alone until 1901, when his sons, Will and Milton, joined him. The hay carrier business at that time was developing rapidly, and the BT Line was well known. Soon the Oshawa hay tool line, manufactured by James Provan, and the Whitman & Barnes line, manufactured in St. Catharines, were purchased, after that the hay carrier business of Messrs. Tolton Bros., Guelph. In more recent years, 1912, the entire business of Wortman & Ward of London, has been taken over, including W. & W. Pumps, Hay Carriers and Daisy Churns.

The BT Manure Carrier was invented in 1904 and the BT Sanitary Steel Stall was introduced a couple of years later.

The position of this firm in the barn equipment field is well indicated by the photos which appear in this catalogue. More BT Steel Stalls are sold in Canada than all other makes combined. Twice as many BT Manure Carriers and BT Hay Carriers are sold every year as all other makes combined.

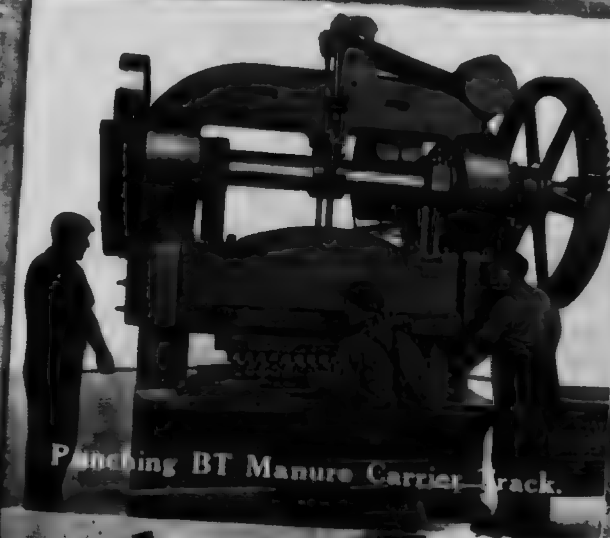
At the time of writing over 600 people are engaged in the BT industry and the number is constantly increasing.

Beatty Bros. Limited, have completely equipped the great proportion of experimental farm barns built by our Governments. A list of these follows. You will note that there are some in every province of the Dominion. Yet big stable jobs do not form one per cent. of the total business. Most of BT Equipment is sold to Canadian farmers of average means.

Better Value in the BT

Complete specifications are given throughout this book for BT Goods. Compare the BT with any other and you will find that BT Goods are better made, made of heavier, stronger materials and better finished. Hundreds of instances in proof appear in this book. There are more patents protecting the BT Equipment than all other styles of Canadian barn equipment combined. At every hand, there is abundant evidence of superiority in design, manufacture and service.

Cutting BT Manger Fronts



Punching BT Manure Carrier Track.

Rivetting BT Stanchions

Bending BT Mangers with bending Brake

And yet BT Equipment compares favorably in price with other makes.

Why is it that we can afford to give this extra value? Why are we able to galvanize our stalls without extra charge; to make our hay carrier and track heavier than any other sold in the country; to maintain a barn planning department in charge of competent architects; to build our equipment to suit the stable so that every part goes right in its place? It is because of the quantity of material we sell and the economies that this enables us to make.

You Benefit by our Efficient Organization

Everyone knows that when you are making 50,000 Stanchions each Stanchion can be made at lower cost than when you are only making 500. Special machines can be put in to do the work that other people have to do by hand. That is what we have done. Some of the special machines are shown in this book.

We have a machine for riveting stanchions which takes the place of 5 men. Another machine, not shown, will bend more triple curve partitions in a day than 50 men.

The wide sale of BT Equipment has made it worth while to instal these machines and save money on every job we sell. Labor cost is reduced to a minimum. That explains to you how we are able to galvanize BT Steel Stalls without charge, in spite of the fact that galvanized goods cost from 40 to 100 per cent. more.

Economies from which you profit

We not only make barn equipment, but pumps, churns, grain grinders, washing machines and other lines. The result is that on our main lines, we are never compelled to purchase the most of our materials in less than carload quantities.

We purchase our steel tubing, steel, iron and coal in carloads. Our oil fuel is purchased in tank cars. We are one of the largest buyers in Canada of malleable iron castings, these castings being used very largely in BT Stable Equipment.

These purchases give us a tremendous advantage over small manufacturers. We are able to come into the market at the right time with an attractive tonnage, which warrants the makers in giving us their very lowest figures. It also results in a big saving of freights.

We cannot guarantee to give you a lower price on BT Equipment than you might get on goods turned out by some manufacturers. We can, and do, absolutely guarantee to give you better value for the money paid than you can obtain anywhere else.

After all it is the service given by the goods in actual use that counts. Our guarantee on the next page shows how we stand behind our goods. No one is more anxious that our Equipment should give you the utmost service than we are.

In order that it may do this, we put behind it all our experience, ingenuity and special machinery; all our care, thought and attention. Read our guarantee; you will find it on the next page. It is your insurance that any goods you buy from us will be the best value obtainable. We look forward to the chance of showing you what we can do

Where BT Stalls are made

Interior of New Factory, Fergus, Ont.

Interior of Head Office, Fergus, Ont.

Dominion and Provincial Farms Using BT Equipment in Their Barns

ONTARIO

Central Experimental Farm	Ottawa
Ontario Agricultural College	Guelph
Ontario Experimental Farm	Matheson
Ontario Experimental Farm	Fort William
Ontario Prison Farm	Guelph
Ontario Government Farm	Monteith
Provincial Agricultural Farm	Whitby
Provincial Agricultural Farm	Hamilton
Provincial Agricultural Farm	London
Provincial Agricultural Farm	Penetang
Dominion Government Indian Institute	Muncey
Soldiers' Civil Re-Establishment Farm	Kapuskasing
Ontario Hospital for the Insane	Whitby
Ontario Hospital for the Insane	Kingston
Ontario Hospital for the Insane	Brockville
Ontario Hospital for the Insane	London
Ontario Hospital for the Insane	Woodstock
Ontario Hospital for the Insane	Orillia
Ontario Agricultural School	Kemptville
Ontario Industrial Farm	Burwash
Ontario Experimental Farm	New Liskeard

QUEBEC

Dominion Government Farm	Sherbrooke
Dominion Government Farm	Cape Rouge
Dominion Exp. Farm Ental.	Lennoxville
McDonald College Farm	St. Anne
Quebec Government Farm	St. Anne de la Parade

MARITIME PROVINCES

Dominion Government Farm	Fredericton, N.B.
Dominion Government Farm	Kentville, N.S.
Truro Agricultural College	Truro, N.S.
Dominion Experimental Farm	Charlottetown, P.E.I.

MANITOBA

Dominion Experimental Farm	Brandon
Dominion Government Indian Institute Farm	Brandon
Manitoba Agricultural College	St. Vital
Government Indian Institute Farm	Elkhorn
Indian Industrial School	Portage la Prairie
Provincial Hospital for the Insane	Brandon

SASKATCHEWAN

Dominion Experimental Farm	Indian Head
Dominion Experimental Farm	Wilkie
Dominion Experimental Farm	Scott
Saskatchewan Agricultural College	Saskatoon

ALBERTA

Dominion Experimental Farm	Lacombe
Alberta Demonstration Farm	Olds
Alberta Demonstration Farm	Sedgewick
Alberta Demonstration Farm	Claresholm
Alberta Demonstration Farm	Medicine Hat
Alberta Demonstration Farm	Stoney Plains
Alberta Demonstration Farm	Athabaska Landing
Alberta Asylum Farm	Ponoka
University of Alberta	Edmonton

BRITISH COLUMBIA

B. C. University Farm	Point Grey
Dominion Government Farm	Sydney
Dominion Government Farm	Agassiz
British Columbia Colony Farm	Coquitlam

Our Golden Rule Guarantee

WE guarantee BT Galvanized Stable Equipment to be made of the very best material that can be used for the work and that the finish we use is the most durable that can be applied on stalls.

And we go further. We guarantee to each individual purchaser that BT Galvanized Stable Equipment will give satisfactory service in his barn.

BT STANDS FOR BEST

We make this strong guarantee for mutual protection. If there should be any fault in any of our goods, or dissatisfaction on the part of the buyer, we want to know it.

We are able to make this strong guarantee because of our splendid experimental department in which everything is thoroughly tested before being offered for sale, our complete manufacturing facilities, special machines being used for all operations, and our careful barn planning department in which complete sets of blue prints are made for all orders of stable equipment, whether large or small, before being sent to the factory. This service insures to you that your stable equipment will be right before it leaves the factory.

BEATTY BROS., LIMITED

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